

REPORT AND
RECOMMENDATIONS
TO THE SECRETARY,
U.S. DEPARTMENT
OF HEALTH AND
HUMAN SERVICES
MARCH 1, 1989

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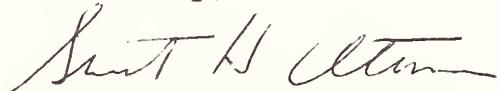
March 1, 1989

The Secretary
Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Mr. Secretary:

I am pleased to transmit to you the annual report of the Prospective Payment Assessment Commission as required by Section 1886 (e)(4) of the Social Security Act as amended by Public Law 98-21. This report contains 17 recommendations updating the Medicare prospective payments and modifying the diagnosis-related group classification and weighting factors.

Sincerely,



Stuart H. Altman, Ph.D.
Chairman

Enclosure

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Executive Summary

Executive Summary

In this fifth annual report, the Prospective Payment Assessment Commission (ProPAC) presents 17 recommendations to the Secretary of the Department of Health and Human Services (HHS) on ways to update and improve the Medicare prospective payment system (PPS) for fiscal year 1990. The recommendations reflect the collective judgment of ProPAC's Commissioners about issues of substantial importance to beneficiaries, hospitals, and the Medicare program.

The Commission offers these recommendations to comply with its statutory mandate and to contribute to an informed and open debate about hospital payment policy under PPS. The recommendations were produced through a process of agenda setting, information collection, analysis, and deliberation that has continued since the publication of the Commission's report to the Secretary in March 1988. The proposed changes are necessary, in the Commission's view, to maintain access to high-quality health care, to encourage hospital productivity and cost-effectiveness, and to permit the adoption of innovative and appropriate technological change. The following major areas are addressed in this year's recommendations.

Updating PPS Payments—The Commission recommends an average increase in the level of PPS prices of 4.9 percent for fiscal year 1990. This would provide an increase of 5.0 percent for hospitals in large urban areas, 4.5 percent for hospitals in other urban areas, and 5.6 percent for rural hospitals.

The update factor recommendations combine several components. The largest is the PPS market basket, which is used to estimate inflation in the prices of goods and services purchased by hospitals. At the time the Commission developed its recommendation, the market basket was forecast to increase 5.7 percent in fiscal year 1990. The Commission also recommends a positive adjustment, currently estimated at 0.6 percent, to correct for errors in the fiscal year 1989 market basket forecast. It is the Commission's opinion that any increases in hospital spending associated with

scientific and technological advancement should be offset by increases in hospital productivity. Therefore, the Commission recommends a net 0.0 percent adjustment for these factors.

A net -0.7 adjustment for case-mix change is recommended. This adjustment is to offset the estimated added revenues that hospitals will receive during fiscal year 1989 because of an increase in their DRG case-mix indexes (CMI), which is not related to treating sicker patients. The Commission has noted in past reports that case-mix index change has been a more important source of PPS revenue increases over time than formal annual updates in payment rates.

The Commission's recommendation also includes a -0.8 percent reduction to the standardized amounts for urban hospitals. This is the final portion of a three-year phased lowering of rates previously recommended by the Commission. It accounts in part for the difference between actual first-year PPS costs and the payment rates for that year. No reduction is applied to the rural standardized amounts because the reduction originally recommended for rural hospitals has already been incorporated into the payment rates.

Finally, the Commission recommends a higher update for urban hospitals in Metropolitan Statistical Areas (MSAs) with more than 1 million people. Technical changes are also recommended to the structure of the market basket. These technical changes give more weight to hospital industry wages than the market basket forecast currently in effect.

Adjustments to the PPS Payment Formula—The Commission proposes an adjustment to the PPS payments for indirect medical education. The Commission recommends lowering the indirect medical education adjustment from 7.7 percent to 6.6 percent and returning the savings to the standardized amounts for all hospitals. In making this recommendation, the Commission balances two factors: a recognition that current analysis has shown that a decrease in the adjustment is warranted, and

a serious concern for the financial impact of a major reduction on teaching hospitals. The Commission also recommends further review and study of outlier payment policy.

Data Collection and Measurement—The Commission urges that timely and accurate data form the basis for PPS payment, and recommends several changes that reflect this priority. The Commission reiterates its belief that the Medicare Cost Report (MCR) is a vital source of information, and urges the Secretary to initiate developmental work that will facilitate further use of the MCR as a source of data for decision-making purposes. ProPAC proposes continued evaluation of improvements in diagnosis-related group (DRG) case-mix measurement that the Secretary has under way. Finally, change is recommended in the DRG assignment of patients with Guillain-Barre syndrome.

Quality of Care—The Commission is concerned about the impact of PPS and the Peer Review Organization (PRO) program on quality of care. ProPAC urges the Secretary to undertake a comprehensive synthesis, analysis, and evaluation of the findings from PRO review activities. The Commission is particularly concerned about the adequacy of the PRO generic quality screens.

Rural Hospitals—The Commission continues to be concerned about the impact of PPS on rural hospitals, especially the adequacy of payments to small, isolated rural hospitals. The Commission also recognizes that the Medicare prospective payment system cannot solve all the financial problems of rural hospitals. ProPAC therefore recommends that the Secretary continue a comprehensive research and policy agenda to address broadly financing and organizational issues concerning rural health care.

Ambulatory Surgery Payment—In response to congressional mandates, ProPAC provides its views on a prospective payment system for hospital outpatient surgical procedures, previewing a full report to Congress in April 1989. The Commission recommends an entirely prospective payment for the facility component of hospital outpatient surgery. This payment should result from a blend of current costs and rates and be updated annually following the approach used under PPS. The Commission also recommends that the methodology

used for calculating the Part B beneficiary coinsurance amount for hospital ambulatory surgery be restructured. This would assure that coinsurance is 20 percent of the payment amount described above.

PPS AFTER FIVE YEARS

The report summarizes the first five years of PPS. In the Commission's view, the program has met many of its goals. ProPAC has not found evidence of substantial or systematic changes in the quality of care received by Medicare hospitalized patients since the implementation of PPS. Nor has the Commission found evidence of a major reduction in the diffusion of new technology.

An increasing number of hospitals are closing. In many cases these may be hospitals that are underutilized or have longstanding financial problems. The impact of closures on access to services requires examination.

These and other vital areas need much more research. ProPAC cautions that the system requires refinement, review, monitoring, and assessment. In addition to continuing to improve the system, ProPAC suggests reexamination of original goals and policies as part of the future PPS agenda.

REPORT ORGANIZATION

Chapter 1 discusses the status and evolution of PPS during its first five years. The 1983 goals and expectations for the system are described, along with functioning and changes in the system through 1988. Current issues and future concerns are also addressed.

Chapter 2 presents ProPAC's 17 recommendations for improving PPS. These recommendations fall into six broad areas for fiscal year 1990:

- Updating PPS payments,
- Adjustments to the PPS payment formula,
- Data collection and measurement,
- Quality of care,
- Rural hospitals, and
- Ambulatory surgery payment.

The Appendices to the report include important technical and supporting material and information about ProPAC Commissioners and operations.

RECOMMENDATIONS FOR FISCAL YEAR 1990

Updating PPS Payments

Recommendation 1: Amount of the Update Factor for PPS Hospitals

For fiscal year 1990, the standardized amounts should be updated by the following factors:

- The projected increase in the modified PPS market basket as recommended by ProPAC, currently estimated at 5.7 percent;
- A positive adjustment, currently estimated at 0.6 percent, to correct for errors in the fiscal year 1989 market basket forecast;
- A discretionary adjustment factor of 0.0 percentage points;
- A net -0.7 percent adjustment for case-mix change;
- A -0.8 percent adjustment for urban hospitals to reflect first-year PPS cost information; and
- A differential update for urban hospitals in MSAs with more than 1 million people, accomplished by a +0.2 percent adjustment for these hospitals and a -0.3 percent adjustment for other urban hospitals.

This recommendation reflects the Commission's judgment about the appropriate increase in the level of PPS prices for fiscal year 1990. It assumes that the Commission's other concerns regarding the payment formula and the DRG weighting factors are also addressed in the fiscal year 1990 payment rates.

Recommendation 2: Market Basket Structure

The Commission believes the hospital industry wage portion of the market basket should be increased to better reflect changes in hospital and other labor markets. The wage and benefit compo-

ment of the market basket should be measured using 50 percent Employment Cost Index compensation series for hospital workers and 50 percent non-hospital ECI compensation series reflecting the types of employees hospitals hire. The Commission also encourages the development of an ECI compensation series specific to hospital professional and technical workers.

Recommendation 3: Discretionary Adjustment Factor

For fiscal year 1990, the net allowance for scientific and technological advancement and productivity improvement in the discretionary adjustment factor should be zero.

Recommendation 4: Adjustments for Case-Mix Change

For fiscal year 1990, the PPS standardized amounts should be reduced by 0.7 percent to account for increased payments from case-mix index change. This adjustment reflects:

- A 3.0 percent reduction for the estimated case-mix index change during fiscal year 1989,
- A positive allowance of 1.5 percent for real across-DRG case-mix index change during fiscal year 1989, and
- A positive allowance of 0.8 percent for within-DRG case-complexity change during fiscal year 1989.

The Commission urges the Secretary to continue research that will help measure the components of case-mix change in light of its importance for hospital payments.

Recommendation 5: Adjustment to the Level of the Urban Standardized Amounts

The update factor for fiscal year 1990 should include an adjustment to lower the urban standardized amounts by 0.8 percent. No reduction should be applied to the rural standardized amount. The reduction is the final portion of a three-year phased adjustment previously recommended by the Commission. It reflects the Commission's judgment of how information on average Medicare costs per

case from the first year of PPS should be incorporated into the update factor.

Recommendation 6: Additional Update for Hospitals in Large Urban Areas

For fiscal year 1990, urban hospitals in Metropolitan Statistical Areas with more than 1 million people should receive an update 0.5 percent higher than hospitals in other MSAs. This should be accomplished by a 0.2 percent increase to the standardized amount for large urban areas combined with a 0.3 percent reduction to the other urban standardized amount.

The higher costs of hospitals located in large urban areas are not fully recognized by current PPS payment policy. Because a differential update factor is an imprecise method of adjustment, more research should be undertaken to further the understanding of the sources of higher costs in these areas. Simultaneously, a broad review of PPS payment equity should be undertaken, including consideration of overlap among current payment adjustments.

Recommendation 7: Update Factor for Excluded Hospitals and Distinct-Part Units

For fiscal year 1990, the target rate of increase for excluded hospitals and distinct-part units should be determined separate from the PPS update factor. The rehabilitation, psychiatric, and long-term facilities' target rate of increase should reflect the projected increase in the hospital market basket for these hospitals corrected for fiscal year 1989 forecast error. The target rate of increase for children's hospitals should reflect the projected rate of increase in the PPS hospital market basket corrected for forecast error.

Adjustments to the PPS Payment Formula

Recommendation 8: Indirect Medical Education Adjustment

The Commission recommends that the Secretary seek legislation to reduce the indirect medical education adjustment from its current level of 7.7 percent to 6.6 percent for fiscal year 1990. This reduction should be implemented in a budget neutral

fashion, with the savings returned to all hospitals through corresponding increases in the standardized amounts.

Recommendation 9: Outlier Payment Policy

The Commission believes that the modifications in the outlier payment methodology that were implemented during fiscal year 1989 represent an improvement in the payment system. The Secretary should continue to examine methods for improving the effectiveness of outlier payment in accomplishing its two major objectives: protecting hospitals from the risk of extraordinarily costly cases, and protecting types of patients who are more likely to be extraordinarily costly from a potential decrease in access to inpatient hospital services. This examination should include a review of the fundamental structure of outlier payment policy.

Data Collection and Measurement

Recommendation 10: Updating the Area Wage Index

The Commission strongly urges the Secretary to collect more current data on hospital wages and hours of employment, and to use these data to update the wage index for fiscal year 1990. The Secretary also should develop a permanent mechanism for obtaining accurate hospital wage data annually. In addition, the Commission urges the Secretary to update the wage index at least every other year.

Recommendation 11: Improving the Cost Data Used for Decision Making

The Secretary should initiate the developmental work necessary to secure the future role of the Medicare Cost Report as a vital information source for policy evaluation and decision making. Although the cost report was originally developed and continues to be used as a reimbursement tool, it is also increasingly used as a source of data. This trend will continue and should be encouraged. Efforts to improve the Medicare Cost Report should attempt to minimize the administrative burden on hospitals, fiscal intermediaries, and the Federal government.

Recommendation 12: Improvements in Case-Mix Measurement

The Commission urges the Secretary to begin immediately to thoroughly evaluate the potential consequences of adopting DRG refinements recently developed at Yale University. Preliminary results from this project appear to be positive. Much work remains to be done, however, to understand all the implications of applying these refinements to PPS. The Commission will be pleased to cooperate fully with the Secretary to further this effort.

Recommendation 13: Reassignment of Patients with Guillain-Barre Syndrome

The Secretary should reassign patients with Guillain-Barre syndrome from DRGs 18 and 19 to DRG 20, DRG 34, or a new DRG.

Quality of Care

Recommendation 14: Evaluation of PRO Review of Quality of Care

The Secretary should evaluate the impact of the Peer Review Organizations on quality of care. Intensified analysis of the PRO findings and validation of the PRO quality review process should be included in the evaluation. The validity, reliability, and efficiency of the PRO quality screens should receive special emphasis in the evaluation. In addition, the Secretary should continue to develop, test, and implement more sophisticated methods of inpatient and outpatient quality review. He should also develop additional mechanisms to identify and evaluate quality of care beyond the immediate period of hospitalization, placing more emphasis on outcomes of care.

Rural Hospitals

Recommendation 15: Rural Hospitals

The Commission is concerned about the problems affecting rural hospitals and the rural health care system, as well as the implications of these problems for access to needed health care. The Commission recognizes that these problems extend beyond PPS and Medicare. The Commission urges

the Secretary to continue the Department's rural health care research and policy agenda. Meanwhile, the Commission will continue its analysis of the effects of PPS on rural hospitals.

Ambulatory Surgery Payment

Recommendation 16: Medicare Payment for Hospital Outpatient Surgery

Beginning in fiscal year 1990, Medicare payment for the facility component of hospital outpatient surgery, including capital, should be entirely prospective. Separate rates should be established for each of the six groups of surgical procedures proposed for payment of services furnished in freestanding ambulatory surgery centers (ASCs). The hospital outpatient surgery rates for fiscal year 1990 should be based on a blend of hospital-specific costs, average hospital costs, and the rate paid to ASCs.

The rates should be updated annually following the approach used under PPS. The overall level of the prospective rates should be set so that the sum of Medicare and beneficiary payments to hospitals would be the same in fiscal year 1990 as they would have been under current policy. Payments should reflect differences in area wages.

These changes in hospital outpatient surgery payment policy should apply to the list of ASC-approved procedures only; the existing Medicare payment provisions should continue for non-list procedures. The Commission is not recommending differential treatment of eye and ear specialty hospitals.

Recommendation 17: Beneficiary Liability for Hospital Outpatient Surgery

The Secretary should modify the method to determine Part B coinsurance for certain ambulatory surgery services performed in hospital outpatient departments. Currently, beneficiary coinsurance is based on hospital submitted charges. Beneficiary coinsurance should be limited to 20 percent of the payment amount allowed by Medicare. The Medicare program should bear the costs of this change.

Chapter 1

The Prospective Payment System: 1983-1989

The Prospective Payment System: 1983-1989

In 1983 Congress enacted a major reform in Medicare payment policy: the prospective payment system (PPS). The system, which altered payment of inpatient hospital services for Medicare beneficiaries, offered new opportunities and challenges to the government and to providers of health care services.

Concerned about the need to continually monitor and update the new system, Congress established the Prospective Payment Assessment Commission (ProPAC) as an independent panel. ProPAC provides the executive and legislative branches of the government with analysis and advice on PPS issues. This is ProPAC's fifth annual report to the Secretary of Health and Human Services with recommendations for updating and modifying PPS. This report expresses the collective views of the Commission, although in some cases individual Commissioners hold alternative opinions.

At this point, in the sixth year of PPS, it is appropriate to review how the system evolved and its current status. This chapter looks at the original goals and design, as well as how PPS has changed and functions today. In addition, current issues and future concerns are addressed. Throughout this chapter, the Commission comments on its assessment of the program. In a June report to the Congress, *Medicare Prospective Payment and the American Health Care System*, the Commission each year reports more fully on its judgments about the impact of PPS on the entire health care system.

ProPAC hopes this review will be useful to policy makers and others interested in the ongoing evolution of PPS. The Commission believes that the program has met many of its important goals.

The system that replaced more than 16 years of cost-based reimbursement—termed revolutionary only five years ago—is now an established part of the U.S. health financing structure.

1983 GOALS AND EXPECTATIONS

The post-World War II period saw high rates of growth in health care spending. After the 1965 enactment of Medicare, the nation experienced unprecedented increases in health care spending, much of it for inpatient hospital care. Thus, for many years, successive Congresses and Administrations sought ways to control the rate of increase in hospital costs. As early as 1967, the Congress encouraged experimentation with alternatives to cost-based hospital payment, including prospective pricing. In December 1982, a system of prospective payment for Medicare beneficiaries' hospital services was proposed by the Administration.

In outlining the proposal, the Administration emphasized several goals. These were that the system should:

- Maintain beneficiary access to quality care, with no additional billings to beneficiaries;
- Be easy to understand and simple to administer;
- Be capable of quick implementation;
- Help hospitals gain predictability in their Medicare revenues;
- Establish the Federal government as a prudent buyer of services;

- Provide incentives for efficiency, flexibility, innovation, planning, and control;
- Maintain the level of expenditures that would have been incurred if the then-current system were retained; and
- Reduce cost reporting burdens on hospitals.

Within six months, Congress enacted this major reform of Medicare hospital payment. The Administration's goals were often cited during congressional debate. While both houses of Congress made changes to the original proposal, neither altered the fundamental design of the system. The essence of the proposal was maintained in the final legislation, Pub. L. 98-21, which was enacted in April 1983 for implementation on October 1, 1983. This was a system of prospectively set prices, to be updated annually, with certain adjustments to meet policy goals and for conditions beyond the control of individual hospitals.

SYSTEM DESIGN

The prospective payment system required setting predetermined payment amounts for each patient discharge through the use of diagnosis-related groups (DRGs). The original DRGs, developed and refined by Yale University and tested in New Jersey, measure the output of a hospital by categorizing patients.

In the modified DRGs used for PPS, patients are classified into 23 Major Diagnostic Categories (MDCs), which are based on the human body systems. The 23 MDCs are further divided by other factors to ensure clinical and resource homogeneity within groups. Among these factors are diagnostic or surgical procedure, other clinical information, and patient characteristics. This results in nearly 500 individual DRGs.

Each DRG was initially assigned a weight, indicating the relative amount of resources used to treat a patient assigned to the DRG. The DRG weights were constructed so that they would average to 1.0 across hospitals. The initial weights were based on 1981 costs.

The payment to a hospital is determined by multiplying the DRG weight by the standardized

amount. Standardized amounts were computed originally by determining the average per-case amount Medicare would have paid for hospital care in the absence of the new system, and then adjusting this amount for a variety of factors related to other policies that were to be taken into account.

Standardized amounts have been updated through regulatory and legislative actions for each subsequent fiscal year. Several factors affect the final payment amount, but the prospective payment for each discharge can be generally described by the following formula:

$$\text{Standardized Amount} \times \text{DRG Weight} = \text{Payment Per Discharge}$$

As noted, this cornerstone of the system was supplemented by a series of adjustments for conditions determined to be beyond the control of individual hospitals or requiring special consideration. The adjustments originally suggested by the Administration were modified and augmented during legislative debate. Adjustments enacted in 1983 covered wage rates, location in rural or urban area, and teaching status. An outlier adjustment was fashioned for payment of cases with unusually costly or lengthy hospitalization. Other adjustments have since been added. The most important is the additional payment to hospitals that serve a high proportion of low-income patients.

In addition, Congress provided for a transition so that national standardized amounts would be phased in over a four-year period. Subsequently the transition was extended to five years. During the first year, payments were based on a hospital's own historical costs and regional average rural and urban standardized amounts. By the end of the transition, payments for most hospitals were based entirely on national average rural and urban standardized amounts.

Pending future analysis and policy development, Congress excluded several types of hospital costs from the new payment system. For example, payments for the direct costs of medical education and for capital costs continue to be based on cost reimbursement. Specialized hospitals and units, such as psychiatric, long-term, children's, and rehabilitation, were also excluded from the new system.

Authority mandating the Prospective Payment Assessment Commission was added to the PPS law during the legislative debate. The Commission was structured as an independent agency, with 15 (now 17) members appointed by the congressional Office of Technology Assessment. Commissioners with expertise in health care delivery, financing, and research were to provide advice on the functioning of the new hospital payment system through reports and recommendations to the Secretary of Health and Human Services and to the Congress.

FUNCTIONING AND CHANGES IN THE SYSTEM

During the first five years of PPS, the Federal health policy environment has become increasingly tense, primarily due to the growing Federal deficit and evolving policies designed to reduce and eventually eliminate that deficit. Budget considerations increasingly drive decision making, and executive and legislative branch roles have changed since PPS was enacted. Whereas the role of the Congress has become more directive, the role of the Secretary has diminished, especially in the area of updating payment rates.

Originally established as an adviser to both the Secretary and the Congress, ProPAC has steadily become more involved in advising Congress through the development and presentation of analytic studies. The Commission has maintained its independence by stressing an analytic approach in its advice and decision-making roles, leaving the larger balancing decisions related to overall budget priorities to the Administration and the Congress.

Against this backdrop of ever-growing concern about reducing rates of increase in all health care spending, PPS has been implemented and continues to evolve. Although per-admission costs are still rising rapidly, total inpatient hospital spending increases have moderated due to decreased admissions. Nevertheless, pressures for savings persist. Despite the lower rate of increase, Part A inpatient hospital spending still represents the largest single component in the Medicare program, nearly 60 percent of total expenditures. The projected increases in Medicare spending and the need for savings lead budget analysts and policy makers at all levels to constantly return to review of the Medicare hospital payment system. Nearly every

piece of legislation related to health financing passed since 1983 has modified the original PPS statute, often for the purpose of realizing program savings.

In this section the Commission describes the functioning of the system since 1984 and reviews the major changes that have been enacted to address evolving problems. The Commission's judgments on many of these matters are stated.

Updating PPS

The 1983 statute calls for updating payment rates each year through changes in the standardized amounts. The authority to set the update factor, the annual change in the standardized amounts, initially resided with the Secretary. However, since 1986 the Congress has legislated the amount of the update factor.

Furthermore, the original statute called for the Secretary to propose and implement an annual update factor through the regulatory process. The Secretary's decision was to reflect the recommendations of ProPAC. The ProPAC recommendation, in turn, was to account for changes in the need to maintain quality and promote efficiency in hospital services. Several factors in the statute were identified for consideration, including the costs of goods and services that hospitals purchase (the market basket), hospital productivity, technological and scientific advances, quality of health care, and cost-effectiveness of inpatient hospital care.

The Commission has continued to make its annual recommendations to the Secretary. In practice, however, the Congress uses ProPAC's analysis and advice, along with similar advice from the Secretary, and sets the update by law.

ProPAC and other decision makers have followed the statute's lead in dividing the update factor into two major components. The first is the market basket, which measures inflation in the prices of goods and services purchased by the hospital. The second considers all other factors judged relevant to updating payments. Overall consideration of factors related to quality and access to care has played a significant role in Commission decision making. ProPAC has also carefully reviewed other

sources of per-case payment increases in making update recommendations.

Market Basket

The hospital market basket is constructed by: (1) specifying the inputs that hospitals purchase and combining inputs into components, (2) determining a weight for each component that represents its share of hospital expenses, and (3) identifying measures of price change for each component. The overall change in the price of the market basket is computed by multiplying each component's price change by its weight to arrive at a product for each. All products are then added.

In making its recommendations, the Commission sometimes modifies the market basket portion of the update to reflect errors made in forecasting the previous year's market basket increase.

ProPAC has carefully reviewed the components and computation of the market basket and made many recommendations for improvement. The recommended changes, implemented by the Secretary primarily in fiscal year 1987, have improved the validity and reliability of this measure of inflation. The Commission believes this has been an important improvement to PPS. ProPAC will continue to study and recommend changes in this technical but important portion of PPS.

Other Adjustment Factors

Although terminology varies, other elements have been added to or subtracted from the market basket to update hospital payments under PPS. Components considered by ProPAC include funds for scientific and technological advancement, achievable improvements in hospital productivity, reductions to account for the transfer of services out of the hospital, and changes in medical record-keeping not related to the severity of illness. These additional components of the update factor have not been defined statically over the five-year history of PPS. Because the Commission believes the major shift in site of care has been accomplished, for example, it is no longer taken into account when adjusting the update factor.

Hospital payments automatically increase as the mix of patients across DRGs becomes more complex, causing the case-mix index (CMI) to rise. In fact, during the first five years of PPS, rising CMIs resulted in larger payment increases than the annual update factor and all other policy adjustments combined. It was originally expected that CMI increases would moderate over time. However, recent evidence indicates that this has not happened as quickly as expected. The Commission and others have therefore devoted considerable attention to the issue of case-mix change and the factors that account for it.

The Commission believes that PPS rates should reflect real case-mix increases, but not changes in medical record documentation or coding practices. Real case-mix change is defined as changes in types of patients or changes in patient treatments that result in greater resource use. The Commission has investigated methods to differentiate CMI change caused by real case-mix change from medical record changes, or upcoding. Currently, it is impossible to do this precisely because of data limitations and an imperfect understanding of the factors affecting coding behavior. This remains an important area for continued policy research.

Case-mix index change and other factors have played an important role in decisions to recommend payment updates that amount to less than the market basket increase for a given year. Per-case payments to hospitals have greatly exceeded the level of the update factor because of case-mix increases, which will be discussed later.

Differential Standardized Amounts and Updates

The PPS statute recognized a long history of different costs in urban and rural hospitals by providing for separate urban and rural standardized amounts. In the years following enactment of PPS, differences in the experiences of these types of hospitals led to decisions to provide for separate update factors for urban and rural hospitals. In addition, Congress allowed for a slightly higher update for hospitals in large urban areas (those with more than 1 million people) than for those in smaller urban areas.

The use of different standardized amounts and update factors was part of a trend over the first five years of PPS to refine the payments to better reflect important differences among hospitals. The Commission recommended a number of similar changes later adopted by Congress. ProPAC continues analytic work designed to develop data about different types and classes of hospitals and their experience under PPS. In the Commission's opinion, these equity issues are increasingly important in a constrained budget environment and require ongoing assessment and review.

Changing Roles in Determining the Update Factor

The changing role of the Congress is seen clearly in reviewing update factor decisions during the PPS years. After designing a system that would rely on an administrative process and advice of ProPAC for updates, the Congress began almost immediately to restrict the executive branch role. First the amount of the update was limited in the Deficit Reduction Act of 1984 (Pub. L. 98-369). Congress subsequently legislated specific updates for each of the next four years.

As the responsibility initially assigned to the Secretary has shifted, so has the source of analytic and quantitative data. ProPAC developed and has followed a consistent format for considering elements that should be reviewed within the context of the update factor. The Secretary initially provided some detail for the basis of decision making, but analytic justification for proposed update factors has diminished in later annual PPS regulations. The Commission regrets that the Secretary has chosen to eliminate the development of quantitative and analytic justification for the update factor. This lack of justification results from the fact that the budget has increasingly driven decision making by both the Secretary and the Congress.

These role changes and the complexity of the necessary decisions have resulted in an increasingly contentious environment surrounding PPS. A shift in roles has occurred, with interested parties exerting strong efforts to influence decisions. The hospital industry has repeatedly complained about unmet promises that PPS would result in predictable payments. Expectations that the update factor

would be the major vehicle for payment increases likewise have not proved to be the case.

Hospitals, beneficiaries, and others regard the update factor as the chief source of payment increase to hospitals under PPS. ProPAC, on the other hand, has not found this to be true. Commission analysis has shown that for the first five years of PPS, update factors and other legislative policy changes increased per-case PPS payments by about 11 percent. Case-mix index change led to payment increases almost double that rate, or about 20 percent. Consequently, while the update factor is still an important consideration in PPS policy making, it must be viewed in the context of other factors affecting payments. The update factor has been a less significant part of revenue increases than originally anticipated.

Continued review and identification of other forms of payment increase and adjustments to the update factor to account for these increases are crucial, however. ProPAC review and analysis of revenue-increasing features of PPS policy thus will continue to be a critical part of Commission agendas.

Wage Index

PPS provides that the DRG rates be adjusted by a wage index. This index reflects the average hospital wage level in an individual hospital's geographic area, compared with the national average hospital wage level. That portion of the standardized amount determined to be labor-related (roughly 75 percent) is multiplied by the appropriate wage index; hospitals in areas with relatively high wages receive a higher payment.

Although the wage index had been used before PPS, several technical problems have been corrected since the system was implemented. Others remain. Unfortunately, controversy has surrounded the wage index and the data used to calculate it. Any change in the wage index results in higher payments to some hospitals and lower payments to others. Disagreements arise each time wage index changes are considered. The Commission regrets that technical corrections that would lead to a more accurate wage index have not been implemented. ProPAC will continue to develop recommendations for technical refinements to the wage index to make it more accurate and up-to-date.

Labor Market Areas

Since the beginning of PPS, ProPAC has been concerned that the wage index is critically flawed by its insensitivity to large variations in hospital wage levels within many labor markets. This flaw stems from the fact that the index is based on Metropolitan Statistical Area (MSA) designations. Frequently, wage levels differ for the core city, suburban areas, and sometimes even rural areas located in counties partly within an MSA. Wages also vary across rural areas within states. ProPAC has studied this situation extensively, and recommended on numerous occasions the use of labor market area information to distinguish separate labor markets within MSAs and rural areas. These ProPAC recommendations have not been implemented. As with changing the wage index, implementation of this change would modify the pattern of reimbursement to hospitals, thereby distributing Medicare payments more accurately and equitably. The Commission therefore has urged Congress and the Secretary to consider making this important change in the system.

Medical Education Adjustment

Besides continuing cost reimbursement for a hospital's direct costs of medical education, the PPS statute provided for additional payments to cover the indirect costs of medical education. The medical education adjustment was developed in the 1970s to recognize higher patient care costs in hospitals that are involved with the training of interns and residents. This adjustment is calculated using the ratio of interns and residents per bed. Among the factors commonly believed to contribute to the higher costs associated with teaching are greater use of ancillary services, more severely ill patients, location in inner cities, and a more costly mix of staffing and facilities. A formula is used to determine the amount of the adjustment.

Concerned that PPS would have a significant adverse effect on teaching hospitals, Congress enacted a statutory mandate that doubled the adjustment previously calculated. The adjustment was accomplished in a budget neutral fashion, by removing a portion of payments from all hospitals to fund the added payment to teaching hospitals. The rationale for the adjustment was that, in addition to compensating these hospitals for indirect medical education effects, it would partially correct the

system's inability to account for other factors that legitimately increase costs in teaching hospitals.

It quickly became clear that the double teaching adjustment overcompensated teaching hospitals for their higher costs. Analysts began to explore alternative methods to calculate the relationship between medical education and Medicare cost per case. Based on estimates provided by the Congressional Budget Office (CBO), Congress reduced the adjustment beginning during fiscal year 1986 and again beginning in fiscal year 1989.

Concerns have continued to be raised about the appropriateness of the level of the indirect medical education adjustment. ProPAC offers recommendations to further refine the adjustment in this report. The Commission also recommends that analytic work on this subject be continued.

Adjustment for Disproportionate Share Hospitals

The original PPS statute provided authority for the Secretary to implement a special adjustment for hospitals serving a disproportionately large number of low-income and Medicare patients. The Secretary, however, declined to promulgate such an adjustment.

ProPAC believed from the beginning that the Secretary's lack of action resulted in a serious defect in PPS, and recommended implementation of the adjustment. Analysis by ProPAC, CBO, and others showed a relationship between services to the poor and increased Medicare cost per case. This analysis was used as the basis for the adjustment prescribed in Pub. L. 99-272, which was later refined and extended. The Commission continues to monitor this adjustment and to study the interactions of various phenomena, including the effect of medical education, on disproportionate share hospitals.

Case-Mix Measurement and Severity of Illness

Use of the diagnosis-related groups for defining and measuring case mix has presented a series of challenges. Given the limitations of the data, the Commission believes that this system represents the best available way to classify patients for

Medicare payment. Nevertheless, the amount of unexplained variation in resource use among patients is large, and continuing work on alternative classification systems or DRG enhancements to better measure severity of illness is necessary. There is also need for additional study to clarify, refine, and redefine the DRGs to reflect changing technology, medical practice patterns, and complexity of cases. Further work is likewise needed to ensure that the medical coding conventions, which are the underpinning of the DRGs, are up-to-date and appropriate. Similarly, the Grouper program used to assign cases to DRGs needs continual updating and refining.

All these activities have been under way during the five-year history of PPS. On balance, the Commission believes the Secretary has made important improvements to the DRG classification system. ProPAC remains committed to careful monitoring and analysis of the DRGs, as well as to reviewing any problems brought to its attention by interested groups or individuals. Several specific topics deserve further discussion.

Individual DRGs and New Technology

The Commission has not found evidence of a major reduction in the diffusion of new technology in hospitals since the beginning of PPS. In fact, recent studies seem to indicate that hospitals have added services since the advent of PPS.

The Commission believes that the system should adequately reflect new technologies and that payment rates for these technologies should be sufficient. However, the Secretary has sometimes been slow to implement change in this area. Appropriate change is increasingly important with worsening hospital financial conditions. Changes related to individual DRGs and new technology have been a major subject of disagreement between the Commission and the Secretary. ProPAC will continue to carefully monitor and analyze individual technologies, especially new ones, and their experience within the DRGs, making recommendations for change when warranted.

Recalibration

Recalibration creates an entirely new set of DRG weights that more accurately reflect the relative costliness of current medical care practice patterns.

Because of the rapid changes in medical care practice patterns and technology, recalibration of the DRG weights is periodically necessary. The 1983 PPS statute called for recalibration at least every four years. The original set of DRG weights reflected 1981 practice patterns because the billing data used as the basis for establishing the weights came from that year.

The Commission advocated recalibration as soon as possible after the first year of PPS, using the most recent data available. This recommendation was adopted by the Secretary. ProPAC was similarly concerned that frequent recalibration was appropriate, and recommended annual recalibration in its 1986 report. The Secretary did not recalibrate the DRGs for fiscal year 1987. But the Congress enacted a mandate for annual recalibration, thus ensuring that the DRG system would reflect the most recent changes in technology and practice patterns. The Commission is pleased that annual recalibration is now automatic, helping to keep the system as up-to-date and accurate as possible.

Hospital-Level Variations Within DRGs

The Commission has begun studies of variations in resource use within DRGs across individual hospitals. One study reviews regionalization and specialization of services. Initial findings suggest that, although some concentration of services within certain hospitals has occurred, it is neither substantial nor systematic. ProPAC believes that concentration of specialized procedures can be a positive trend for beneficiary quality of care.

ProPAC has also studied geographic variations in inpatient treatment costs. Initial analysis demonstrated considerable geographic variation in the cost of treating patients for selected case types. Further analyses of geographic variation in treatment costs are being undertaken.

These studies of variation in resource use within DRGs are critical to understanding variations in medical practices and the appropriateness of services furnished to Medicare beneficiaries. As payments are constrained and hospital financial conditions worsen, hospitals and their medical staffs should carefully examine their practices and eliminate inappropriate or ineffective services.

ProPAC believes that variations in resource use are an important area for further research.

Hospitals and Units Providing Specialty Services

From the beginning of PPS, hospitals or centers serving special types of patients have received particular attention. Those involved extensively in cancer treatment and research can receive special consideration under the PPS statute, for example. Other types of hospitals were specifically excluded from the prospective payment system. The Commission believes that, in limited circumstances, special treatment should be considered for some hospitals and centers. Because these hospitals and centers may treat only the most resource-intensive cases in a DRG, the Commission will continue to examine whether they receive adequate PPS payments.

The Commission is concerned that the Secretary has sometimes been slow to recognize and correct problems related to specialty centers. For example, it was necessary for the Congress to enact a payment modification when the Secretary did not correct problems associated with burn DRGs and burn centers. The Commission believes it is important to continue to monitor the impact of PPS on specialty hospitals and centers.

Outlier Policy

PPS operates on an averaging principle in which payment is based on the cost of a typical case within a DRG. Some cases, however, have exceptionally long lengths of stay or are extremely costly. Under the PPS statute, these atypical cases, or outliers, receive additional payment. The law requires a target for outlier payments of between 5 and 6 percent of total PPS payments. In practice, the payment for outliers may be more or less than the targeted proportion, depending on the number of outlier cases actually treated during a given year.

Outlier payment policy has provided a critical buffer for hospitals serving atypical cases during the first five years of PPS. ProPAC continues to study outlier policy, and supports recent policy changes undertaken by the Secretary to deemphasize length of stay and frame a policy primarily

based on extreme costliness or loss. ProPAC and other observers have noted that outlier cases and payments are unevenly distributed across hospital groups and DRGs. These findings require continued study and review, and will doubtless result in analysis on which to base continuing refinement of PPS. It is the judgment of the Commission that, despite the recent changes, the conceptual basis for outlier payment policy is an area of ongoing concern. Analysis will continue in this important area.

Beneficiary Liability

During debate on PPS, concern was expressed that beneficiary financial liability should not be changed by the new system. Over time, however, the precipitous drop in patients' length of hospital stay unintentionally increased the proportion of payment borne by Medicare beneficiaries. The inpatient hospital deductible and daily coinsurance rates rose substantially as a result of the declines in length of stay, which were largely attributed to PPS incentives. Moreover, the shift of some services from inpatient to outpatient settings, also partially related to PPS incentives, may have increased beneficiary out-of-pocket costs.

Pre- and post-PPS comparisons of beneficiary financial status will be difficult because of complicated changes made by enactment of the Catastrophic Health Insurance Coverage Act in 1988. ProPAC is pleased, however, that the Act has corrected another inadvertent change in liability resulting from PPS: beneficiary responsibility for cost-sharing in certain outlier cases. Coverage expansions to provide inpatient hospital care without regard to computation of spells of illness and lifetime reserve days address these concerns.

ProPAC will continue to monitor financial liability of beneficiaries under PPS as other changes occur in health care delivery and financing. ProPAC has concluded that, overall, Medicare-related beneficiary out-of-pocket costs increased during the 1980s. However, the Commission notes that total beneficiary share of spending for covered services remained nearly constant from 1980 to 1987, at approximately 23 percent. The rate of increase in Medicare-related beneficiary out-of-pocket costs is less than overall Medicare program growth. However, beneficiaries are not always protected from

the risk of some high out-of-pocket costs. Thus, the subject of beneficiary financial liability is critical and deserves continuing attention.

Rural Hospitals and Sole Community Hospitals

Under the PPS statute, separate standardized amounts are calculated for urban and rural hospitals. The rural standardized amounts are lower than the urban amounts, reflecting historical costs in rural hospitals. The first five years of PPS resulted in a series of changes in rural payment amounts, reflecting updated and better data. Rural payment amounts in the first years of PPS were substantially lower than appropriate, resulting in adjustments and policy changes recommended by ProPAC and others. In addition, changes in policy related to hospitals that are small and isolated, or are Sole Community Hospitals (SCH), have been recommended and some changes made.

In the Commission's judgment, PPS should provide adequate payment for Medicare patients in rural hospitals, but cannot be expected to pay for additional costs in those rural hospitals in serious financial condition for other reasons. Nevertheless, it may be appropriate for higher payments to be made to some hospitals to ensure adequate access to services for Medicare beneficiaries who live in rural areas. Continued analysis of health care policy toward all rural health care delivery mechanisms is necessary and should be undertaken.

Hospitals Excluded from PPS

The PPS statute created a category of hospitals and hospital units that would not be paid on the basis of DRGs. This category includes psychiatric hospitals and units, rehabilitation hospitals and units, pediatric hospitals, and long-term hospitals. Payment to these hospitals and units is based on each facility's own costs, limited by a rate of increase on per-case costs. This target rate of increase limit, established by the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), must be updated each year. The update to the limits is analogous to the update factor for PPS hospitals. ProPAC recommends an update for these PPS-excluded hospitals each year.

ProPAC was convinced that the update factor for these hospitals should be separate from the update factor developed for PPS hospitals. The Secretary disagreed with this contention, suggesting the absence of legislative authority for a separate update factor. In the Omnibus Budget Reconciliation Act of 1986 (OBRA 1986), the Congress clarified this matter, allowing separate update factors for PPS and excluded hospitals as ProPAC had urged.

Policy development for updating payments to these excluded hospitals has evolved over the five years of PPS. Early on, ProPAC determined that pediatric hospitals, while not identical to PPS hospitals, were more similar in terms of their cost components than were other excluded hospitals. Therefore, the recommended update factor amount for pediatric hospitals has generally followed the PPS update factor without adjustments for case-mix change.

ProPAC recommended a separate market basket for psychiatric, rehabilitation, and long-term hospitals and units. Several key differences have been noted to support this approach, particularly the Commission's observation that the labor share of expenses in these facilities is substantially higher than in PPS and pediatric hospitals. This recommendation has been rejected by the Secretary. ProPAC has annually recommended different additions to and subtractions from the market basket than those for PPS hospitals. Congress has followed ProPAC's approach in enacting separately determined update factors for excluded hospitals.

ProPAC analysis has indicated growth in the number of excluded hospitals and units since enactment of PPS. Rehabilitation hospitals and units have experienced the largest growth, while psychiatric hospitals and units have also expanded significantly. Long-term hospitals have increased only modestly. Further analysis of growth, cost, and experience of these hospitals is being undertaken.

These hospitals and units were excluded from PPS because there was no case-mix measurement system applicable to specialized psychiatric, rehabilitation, and long-term patients. Since the enactment of PPS, studies undertaken to develop such measurement systems have failed to produce an acceptable product. ProPAC believes that additional

research and study will be necessary before a prospective pricing system can be implemented for these hospitals.

OTHER AREAS OF COMMISSION CONCERN AND RESPONSIBILITY

In response to a mandate from the House Appropriations Committee, ProPAC annually reviews the impact of PPS on the American health care system. The report covers the consequences of PPS for beneficiaries, hospitals and their employees, and government. It also more broadly discusses the effects of major recent changes in health care, of which PPS is a part but not necessarily a cause. The report considers issues related to ambulatory care, changes in the organization and financial condition of hospitals, national health care, and Medicare expenditures. Critical policy issues like long-term care and coverage of the uninsured have also been considered in the report.

In addition, Congress has asked ProPAC to complete a variety of special studies. Most are related to specific PPS hospital payment policy, while some expand the Commission's focus to other areas. Significant Commission resources have recently been devoted, for example, to preparing a special congressional report on prospective payment for outpatient surgery. This report, *Medicare Payment for Hospital Outpatient Surgery, The Views of the Prospective Payment Assessment Commission*, will be submitted to Congress by April 1, 1989.

Finally, ProPAC is concerned about the bifurcation of Medicare policy, as reflected in the division of the program into Part A and Part B. Since its beginning, Medicare's payment policy and benefits have been defined primarily on the basis of acute care needs, focusing especially on the need for inpatient hospital care and physician services. In the intervening years, the practice of medicine has changed, new technologies have been introduced, and treatment sites have evolved. These changes suggest that it is time to reexamine the partitioning of Medicare into two parts.

PPS experience indicates that when expenditures are controlled in one setting, they increase in other, less controlled settings. Thus there is need to focus on linkages between policy governing Medicare reimbursement systems. ProPAC and the

Physician Payment Review Commission therefore recently established a liaison subcommittee, with three members from each group, to facilitate the exchange of information and coordinate the work of both commissions. The subcommittee will identify areas of mutual or overlapping interest and foster staff and commissioner collaboration where appropriate.

PPS ASSESSMENT AND CURRENT ISSUES

After five years of operation, the Medicare prospective payment system has met many of its original goals. It was implemented quickly, although the transition to national payments was accomplished over five years. As its framers intended, PPS has established the Federal government as a more prudent—some hospitals might argue overzealously prudent—purchaser of health care services. The system has provided some incentives for management efficiency, flexibility, innovation, planning, and control. Some observers might argue that those incentives are not strong enough, while others might hold they are too strong and will adversely affect quality of care.

At various points throughout this five-year period, certain incentives have been altered by policy changes. Some goals have been met; others show mixed results. And some unanticipated problems have resulted that must be resolved in the future. But on balance, the Commission is generally pleased with the implementation and functioning of the system.

Indeed, the first five years have proven that PPS is flexible enough to accommodate change when necessary. Like any radical departure from the past, the system requires ongoing refinement, review, monitoring, and assessment involving the hospital industry and its employees, the Department of Health and Human Services, ProPAC, and the beneficiaries themselves. Here, then, are some observations from the Commission at the five-year mark.

On the positive side, hospitals have not charged beneficiaries for services beyond statutory requirements already in effect. Rates of increase in total expenditures in the inpatient setting have moderated, although per-case costs continue to increase

rapidly. Much more research on quality of care is necessary. Thus far, however, the Commission has not found evidence of substantial or systematic changes in the quality of care received by Medicare hospital patients since PPS implementation.

An increasing number of hospitals have closed in recent years. This is due to decreases in hospital occupancy, increasing constraints on hospital revenue, and other factors that are not well understood. The closure of hospitals that are underutilized or have longstanding financial problems is not unexpected. Additional study is necessary, however, to better understand the patterns of closures and the impact on access to services by Medicare beneficiaries.

As for increasing efficiency and productivity, the results are mixed. Although PPS has probably lowered the rate of increase in Medicare inpatient hospital expenditures, total inflation-adjusted expenditures for all Medicare services continue to rise at about the same rate seen for the past ten years. Hospital costs per case continue to increase at higher rates. In fact, the leveling-off of inpatient expenditures is due primarily to declining admissions, which cannot be attributed to PPS incentives. Nevertheless, PPS has encouraged reductions in length of stay and other efficiency improvements, particularly during its early years.

Several original goals clearly have not been met, but the Commission does not believe this should be alarming. In fact, one could argue that PPS is just now beginning to stabilize and to have its major effects. Data and analysis are now available to make more informed policy decisions than in 1983.

Policy makers intended the system to be easily understood and simple to administer. This has not been the case. Hospital reporting burdens are a persistent problem, and may have increased as the system has become more complex. Yet in order to foster equity among hospitals, complexity is required. Without cost reporting, additional adjustments, and complicated alterations, some hospitals would have been disadvantaged under the system. Had this occurred, the broader goals of beneficiary access and quality of care would clearly have suffered. So on balance, the Commission main-

tains that failure to meet some of the goals related to simplicity is an acceptable tradeoff.

In addition to the goals that have yet to be fulfilled, several factors that were unanticipated or not discussed in the legislative debate and the implementation of the statute remain troublesome.

First is the large increase in expenditures in areas other than inpatient hospital care. Decreased inpatient hospital use has been accompanied by substantial acceleration of expenditures in outpatient, ambulatory, and alternative sites. This is true for both the Medicare program and the entire health care system. Thus, there has been a substantial shift in the way health care dollars have been spent during the 1980s, without an apparent change in the overall spending trend. In addition, this shift has been away from hospitals, where there are longstanding quality review programs, to sites where there is little or no quality review.

Despite the efforts of the health care industry, government, and private sector payers to contain health care spending, the growth in aggregate expenditures has not changed. The consequences of an inability to moderate the growth in health care spending are difficult to untangle, but in many significant areas needs are not being met. These include paying for health services for the millions of Americans who lack financial protection against the cost of illness, as well as for long-term care services.

These more global considerations may suggest that the battle is being won but the war lost. Perhaps, having met many of the original goals of PPS, goals for cost containment need to be examined more broadly. This would require considering the system as a whole and looking beyond individual pieces of the health care delivery system like the hospital.

Another unanticipated development has been the more directive role assumed by Congress, which sometimes further complicates the decision-making process. Whether this type of involvement is regarded as positive or negative, it usually results in clear final decisions. On the other hand, it has occasionally led to such problems as a major delay in updating payment policies and amounts. This

delay has left hospitals without the information they need to plan and budget for upcoming years, negating one of the primary goals of the system: predictability and efficient management and planning.

Finally, after five years of careful monitoring and analysis, the Commission is particularly mindful of the continuing and critical need for timely and accurate information, especially cost data. An important recommendation in this report calls for improving the cost data available from hospitals because of its usefulness in policy analysis and decision making. The Commission believes that the role of the Medicare Cost Report (MCR) is changing from that of a reimbursement tool to that of a vital information source for payment policy development and evaluation.

The Commission believes that future PPS policy agendas are important. After five years, it might appear that a smaller expenditure of resources and

effort is appropriate for maintaining and updating the system. On the contrary, the Commission thinks continued effort is required.

In addition to continuing to refine the system, some basic questions should probably be included on the future PPS agenda. Among these are a reexamination of some of the original goals and policy decisions. The components of the payment formula, together with the methods used to update payments, should continue to be reviewed. Numerous changes in interrelated payment components suggest a need for studying the total payment formula and amounts at some point in the future. Questions about the equitable distribution of payments between and among hospital types could be more fully considered at this time.

In the next chapter, the Commission presents its recommendations for continued modification of the system in fiscal year 1990.

Chapter 2

Recommendations

Recommendations

The Commission's recommendations for fiscal year 1990 are the result of an ongoing process of agenda setting, information collection, analysis, and deliberation. ProPAC selects issues for consideration to conform with its statutory mission and to contribute to an open policy debate on matters of substantial importance to beneficiaries, hospitals, and the Medicare program.

ProPAC's analysis and decision making are guided by a set of interrelated priorities. These priorities provide the underlying basis for the Commission's recommendations on updating the payment rates and improving PPS. They include:

- Ensuring beneficiary access to high-quality health care;
- Encouraging hospital productivity and long-term cost-effectiveness;
- Promoting equity in the distribution of payments to hospitals;
- Facilitating innovation and appropriate technological change;
- Maintaining stability for providers, consumers, and other payers; and
- Making decisions based on reliable, timely data and information.

The Commission has developed a process and guidelines for identifying and analyzing issues related to its responsibilities. Once the Commission establishes its policy agenda, ProPAC staff provides analyses that enable the Commissioners to make informed decisions about appropriate changes to PPS. The resulting recommendations reflect the collective judgment of the 17 Commissioners.

Some recommendations, such as those pertaining to the annual update of payment rates, will be repeated in similar format every year. In other instances, the Commission has reconsidered and amplified or modified past recommendations on the basis of new evidence. In addition, certain issues were examined for which no recommendations were developed. Because these issues receive little or no attention elsewhere in the report, they are briefly discussed later in this chapter.

Concern for reducing the Federal deficit and attaining a balanced budget continued to dominate public policy debates while these recommendations were being developed. Although ProPAC did not explicitly take budgetary concerns into account, the recommendations were developed in recognition of a constrained fiscal environment. Furthermore, the Commission believes that budgetary pressures intensify the need to address distributional and technical payment issues that may bear on the quality of care furnished to Medicare beneficiaries.

Recommendations made previously, but not yet implemented by the Secretary, are still in effect. For example, the Commission considers it important for the Secretary to implement the recommendations concerning the definitions of labor market areas and evaluation of Sole Community Hospital policies, even though there are no additional recommendations on these topics this year.

The following discussion presents an overview of the Commission's 17 recommendations for fiscal year 1990. The full text and discussion of each recommendation follow the overview. Background information, statistical analyses, and alternative options considered are in Appendix A and in the ProPAC technical reports listed in Appendix B. The issue areas addressed by the Commission this year are:

- Updating PPS payments,
- Adjustments to the PPS payment formula,
- Data collection and measurement,
- Quality of care,
- Rural hospitals, and
- Payment for ambulatory surgery.

OVERVIEW OF THE COMMISSION'S RECOMMENDATIONS FOR FISCAL YEAR 1990

Updating PPS Payments

In making recommendations on the update factor, the Commission is required by the PPS statute to:

. . . take into account changes in the hospital market basket . . . , hospital productivity, technological and scientific advances, the quality of care provided in hospitals (including the quality and skill level of professional nursing required to maintain quality care), and long-term cost-effectiveness in the provision of inpatient services.

The Commission must report its recommendations on the update factor to the Secretary of Health and Human Services no later than March 1 of each year, and

. . . taking into consideration the recommendations of the Commission, the Secretary shall recommend . . . an appropriate change factor . . . which will take into account amounts necessary for the efficient and effective delivery of medically appropriate and necessary care of high quality.

Since fiscal year 1986, Congress has set the update factor through legislation. ProPAC and the Department of Health and Human Services (HHS) are thus advisers to Congress on aggregate payment increases under PPS. Nevertheless, the Secretary has an opportunity to evaluate ProPAC's

recommendations before the HHS proposed update is published in regulations.

Recommendation 1 reflects the Commission's overall judgment of the appropriate change in the level of PPS prices for fiscal year 1990 based on currently available data. The Commission recommends a 5.0 percent increase for urban hospitals in large MSAs, a 4.5 percent increase for other urban hospitals, and a 5.6 percent increase for rural hospitals. The weighted average of these updates is 4.9 percent. The update factor may change as new data are received before the final rules for fiscal year 1990 are published. The Commission will publicize any revisions to its recommendation on the update factor during the rulemaking period.

In Recommendation 2, the Commission expresses its belief that the internal (hospital industry) wage portion of the market basket should be increased to better account for changes in hospital labor compensation. Measurement of the wage and benefit component of the market basket should be based 50 percent on the Employment Cost Index (ECI) compensation series for hospitals. This change would raise the internal portion of the market basket from 16 to 33 percent.

Recommendation 3 is the discretionary adjustment factor (DAF), which consists of a combined allowance for scientific and technological advancement and productivity improvement goals. The Commission decided that the net effect of these two factors on the update should be zero.

Recommendation 4 is an adjustment for case-mix change that incorporates three components. These components allow payments to rise for increases in patient resource requirements, but not for changes in medical record coding practices. Based on available data, the Commission believes that the net effect of these components on the update should be -0.7 percent.

Recommendation 5 modifies an update factor component introduced in 1987. At that time, the Commission recommended a 5.4 percent average reduction in the standardized amounts, to be phased in over a three-year period. The recommended reduction was based on an examination of first-year PPS cost data, which showed that actual costs

were substantially below the projected costs on which first-year payments were based.

The Commission recommends a 0.8 percent reduction to the urban standardized amounts for fiscal year 1990, with no reduction to the rural standardized amount. The updates hospitals received in fiscal years 1988 and 1989 suggest that most of the recommended 5.4 percent average reduction has been accomplished by congressional action. Only this adjustment to the urban standardized amounts is needed to complete the reduction.

Recommendation 6 proposes that urban hospitals in MSAs with more than 1 million people receive a 0.5 percent higher update than other urban hospitals. In its December 1988 report to Congress recommending this differential urban update, ProPAC also advises that a broad review of PPS payment equity, including the effects of geographic cost variation, should be undertaken.

Recommendation 7 satisfies the Commission's statutory obligation to recommend an update factor for hospitals and distinct-part units of hospitals excluded from PPS. These hospitals and units continue to be paid on a reasonable cost basis, subject to limits on increases in reimbursement per case. Based on current market basket forecasts, the Commission recommends a 6.3 percent update in the limits for children's hospitals and units, and a 6.2 percent update in the limits for psychiatric, rehabilitation, and long-term hospitals and units.

Adjustments to the PPS Payment Formula

In Recommendations 8 and 9, the Commission expresses its continued concern with technical improvements to the calculation of PPS payments. Such improvements will distribute payments more equitably among hospitals and lower the risk of access and quality problems for beneficiaries.

The indirect medical education adjustment was designed to compensate hospitals for costs that are not otherwise recognized in PPS payments. ProPAC has previously expressed its belief that this adjustment should regularly be assessed with current data to monitor the impact of teaching activity on Medicare costs. In Recommendation 8, therefore, the Commission advises that the Secretary seek

legislation to reduce the indirect medical education adjustment from its current level of 7.7 percent to 6.6 percent for fiscal year 1990. This reduction should be implemented in budget neutral fashion. ProPAC will continue to examine the relationship between teaching effort and Medicare cost per case.

The Commission believes the modifications in the outlier payment methodology that were implemented during fiscal year 1990 represent an improvement in the payment system. In Recommendation 9, the Commission expresses its belief that the Secretary should continue to examine methods for improving the effectiveness of outlier payment. ProPAC will continue its own examination of the policy as well, based on evidence that indicates the potential for further improvements.

Data Collection and Measurement

Recommendations 10 through 13 underscore the importance the Commission places on the availability of timely and accurate data for PPS, and its commitment to improving patient classification and case-mix measurement.

The Commission believes the current hospital wage data are too old to provide an accurate measure of current relative wage levels. In Recommendation 10, ProPAC urges the Secretary to replace these data with more current information and to update the wage index for fiscal year 1990. The Secretary should also develop permanent mechanisms for collecting wage data and updating the wage index more frequently.

In Recommendation 11, the Commission reiterates its belief that the Medicare Cost Report is a vital source of information for decision making. The Secretary should initiate the developmental work necessary to facilitate the transition of the cost report from a reimbursement tool to a reliable and timely source of data.

The Commission is pleased with the progress of ongoing efforts to improve case-mix measurement, and particularly with the Yale University project to refine the DRG system. In Recommendation 12, ProPAC proposes that the Secretary make a thorough evaluation of the potential effects this positive revision might have on all aspects of PPS.

Recommendation 13 addresses the need for reassignment of patients with Guillain-Barre Syndrome.

Quality of Care

Concern for beneficiary welfare enters into virtually all the Commission's deliberations and resultant recommendations. In addition, many of ProPAC's resources are expended on assessing the consequences of PPS for beneficiaries, such as studying the effects of the system on access, quality, and out-of-pocket expenditures.

In Recommendation 14, ProPAC stresses again the importance of evaluating the impact of the Peer Review Organizations (PROs) on quality of care. The Commission is especially concerned about the adequacy of the PRO generic quality screens. In addition, the Secretary should continue to develop improved methods of inpatient and outpatient quality review as well as mechanisms to monitor quality of care throughout the course of an episode of illness.

Rural Hospitals

The adequacy of payment under PPS to small, isolated rural hospitals continues to concern the Commission. In Recommendation 15, however, ProPAC indicates concern that the problems faced by rural hospitals cannot be solved exclusively by the Medicare program. The Commission recommends that the Secretary continue the Department-wide research and policy agenda, broadly addressing both the financing and organization of rural health care.

Ambulatory Surgery Payment

The Omnibus Budget Reconciliation Act of 1986 requires the Secretary to develop and report to Congress on a prospective payment system for hospital outpatient surgical procedures. In OBRA 1987, Congress further requires the Secretary to solicit the views of ProPAC in developing outpatient payment policy and to include these views in his reports. Consequently, the Commission provides its views on ambulatory surgery payment in Recommendations 16 and 17. A full report on this topic will be submitted by the Commission by April 1, 1989.

As presented in Recommendation 16, the Commission believes that payment for the facility component of hospital outpatient surgery should be entirely prospective and updated annually. The rate should be based on a blend of hospital-specific costs, average hospital costs, and the rate paid to freestanding ambulatory surgery centers. Budget neutrality should be maintained in setting the rates. In Recommendation 17, the Commission advises that the Part B coinsurance required of beneficiaries for hospital ambulatory surgery should be limited to 20 percent of the payment amount allowed by Medicare.

OTHER ISSUES CONSIDERED BY THE COMMISSION

The Commission addressed several issues that did not lead to recommendations. These were related to new and changing technologies and practice patterns, and to equity of payment among hospital groups.

New and Changing Technologies and Practice Patterns

In previous reports, the Commission recommended making adjustments in DRG assignment or payment for cases involving cardiac pacemakers, penile prostheses, implantable defibrillators, cochlear implants, and magnetic resonance imaging (MRI). The Secretary has made some adjustments related to implantable defibrillators, but no others.

Concerns that financial incentives are limiting access to certain new technologies continue to be brought to the attention of the Commission. ProPAC remains convinced that payment considerations should not inhibit hospitals from providing patients access to appropriate quality-enhancing technologies. The Commission will therefore continue to examine the use of these technologies and to recommend payment adjustments where appropriate.

Significant changes are occurring in the evaluation and treatment of patients with acute myocardial infarction. The Commission will continue to examine the appropriateness of the current classification of these patients, including the use of thrombolytic agents, cardiac catheterization, and other therapeutic interventions.

ProPAC's analysis of total parenteral nutrition (TPN) identified only a small number of Medicare patients receiving this therapy. It appears that TPN is underreported. This may be because the code for it is new, because the code does not influence payment, or because the number of procedures that can be reported on the hospital billing form is limited. Nevertheless, limited evidence indicates that TPN patients are very costly to care for compared with other patients in the same DRGs. ProPAC will continue to investigate this topic.

In a preliminary analysis, ProPAC found that the use of magnetic resonance imaging is widespread across DRGs. The patients receiving this diagnostic procedure have higher than average charges within the most commonly affected DRGs. The analysis of this topic, however, is also limited by deficiencies in coding. ProPAC will continue to analyze MRI usage and its impact on inpatient costs and payment equity.

An analysis of the use of low osmolality contrast media agents found that this technology has a small incremental cost impact across a number of DRGs. The Commission included this technology in the science and technology component of the discretionary adjustment factor, and will continue to monitor its diffusion.

ProPAC studied several other technologies and concluded that the current DRG assignments are adequate. Analyses of arterial reconstructive (limb salvage) surgery, chemotherapy, and inflammatory bowel disease did not identify substantial payment inequities. The Health Care Financing Administration's (HCFA) restructuring of the DRGs for upper extremity procedures (DRGs 223, 224, 228, and 229) was found to be adequate, although certain procedures of the shoulder and elbow would have been better retained in DRG 224. Finally, the small number of cases identified with malignant external otitis had higher than average resource use. However, the Commission believes that these patients are increasingly being coded with the principal diagnosis of osteomyelitis, which appropriately results in higher payment.

Further detail regarding these investigations is found in the ProPAC technical report, *Analyses of DRG Classification and Assignment*, which is being published simultaneously with this report to the Secretary.

Payment Equity Issues

Wages in Puerto Rico are relatively low. As a result, the Commission is concerned about the appropriateness of using the national portion of labor costs rather than a locally derived standard for determining PPS payment levels in this area. Puerto Rican hospitals are in their second year of participation in PPS, and the Commission will monitor the adequacy of payment to them as more information becomes available.

Concern has been raised that hospitals with high Medicare utilization may be more vulnerable than other hospitals because they have limited ability to supplement Medicare payments from other sources. The Commission thus plans to monitor the relationship between the proportion of Medicare patients and financial performance under PPS.

RECOMMENDATIONS FOR FISCAL YEAR 1990

Updating PPS Payments

Recommendation 1: Amount of the Update Factor for PPS Hospitals

For fiscal year 1990, the standardized amounts should be updated by the following factors:

- **The projected increase in the modified PPS market basket as recommended by ProPAC, currently estimated at 5.7 percent;**
- **A positive adjustment, currently estimated at 0.6 percent, to correct for errors in the fiscal year 1989 market basket forecast;**
- **A discretionary adjustment factor of 0.0 percentage points;**
- **A net -0.7 percent adjustment for case-mix change;**
- **A -0.8 percent adjustment for urban hospitals to reflect first-year PPS cost information; and**

- A differential update for urban hospitals in MSAs with more than 1 million people, accomplished by a +0.2 percent adjustment for these hospitals and a -0.3 percent adjustment for other urban hospitals.

This recommendation reflects the Commission's judgment about the appropriate increase in the level of PPS prices for fiscal year 1990. It assumes that the Commission's other concerns regarding the payment formula and the DRG weighting factors are also addressed in the fiscal year 1990 payment rates.

The Commission's recommendation would result in an estimated 4.9 percent average update factor for fiscal year 1990. This is a weighted average of an estimated update of 5.0 percent for

urban hospitals in large MSAs, 4.5 percent for other urban hospitals, and 5.6 percent for rural hospitals. The numerical amount of the Commission's update factor recommendation is likely to be modified as more current market basket forecasts become available. The components of the Commission's update factor recommendation are summarized in Table 1.

In the Commission's judgment, the recommended update factor reflects the amounts necessary to encourage the efficient provision of hospital care, while maintaining access to quality care by Medicare beneficiaries. ProPAC is aware that recent shortages of nurses and other specialized hospital personnel have led to wage increases for hospital workers that have not been specifically recognized in PPS payments. Hospitals also face substantial constraints on other Medicare payments. These issues were taken into account in the Commission's recommendations.

Table 1. Estimated PPS Update Factors for Fiscal Year 1990 Under ProPAC Recommendations

Total Update Factor	
Average update factor	4.9%
Large urban	5.0
Other urban	4.5
Rural	5.6
Components of the Update Factor	
Components applied to all hospitals:	
Fiscal year 1990 market basket forecast ^a	5.7%
Correction for fiscal year 1989 forecast error ^b	0.6
Components of discretionary adjustment factor	
Scientific and technological advancement ^c	--
Productivity ^c	--
Total discretionary adjustment factor	0.0
Case-mix change	
Total DRG case-mix index change	-3.0
Real DRG case-mix index change	1.5
Within-DRG patient complexity	0.8
Net adjustment for case-mix change	-0.7
Components applied to urban hospitals only:	
Third-year phased reduction to standardized amounts	
Adjustment for large urban areas	-0.8
Adjustment for other urban areas	-0.8
Urban population differential	
Adjustment for large urban areas	0.2
Adjustment for other urban areas	-0.3

^a Forecast of ProPAC-recommended PPS market basket by Data Resources, Inc.

^b The market basket forecast used for the fiscal year 1989 update was 5.4 percent. The most recent fiscal year 1989 forecast is 6.1 percent.

^c The full difference is not adjusted because no correction is made for errors in forecasting hospital industry wages.

^c In the Commission's judgment, the added costs for scientific and technological advancement should be funded by increases in hospital productivity. Therefore, these components of the update factor sum to zero.

The Commission believes it appropriate that rural hospitals receive a higher update factor than urban hospitals. In Recommendation 15, the Commission addresses broader rural hospital issues.

The 5.7 percent estimated market basket increase for fiscal year 1990 is based on the most recent forecasts available from Data Resources, Inc. (DRI). The Health Care Financing Administration has always used DRI forecasts to update the PPS standardized amounts. The Commission is aware that alternative forecasts have been used in the Federal budget estimates, but believes that DRI forecasts should be used to implement the PPS update factor. While all forecasts are subject to error, DRI produces the most detailed forecasts of changes in prices of goods and services that hospitals purchase. In Recommendation 2, the Commission proposes a modification to the treatment of wages in the PPS market basket. The 5.7 percent forecast reflects this recommendation.

The Commission's recommended average 4.9 percent update factor will lead to an increase of more than 4.9 percent in the average per-case payment during fiscal year 1990 (see Table 2). Historically, PPS per-case payments have risen faster than the update factor, primarily because of changes in the mix of patients. An increasing proportion of patients assigned to higher-weighted DRGs has led to a rise in the average DRG weight, and therefore increased payments.

It is difficult to predict the per-case payment increase for fiscal year 1990 due to uncertainties about case-mix index change. But if the overall fiscal year 1990 case-mix index increase were 2.5 percent as estimated by the Congressional Budget Office, and no other changes affecting the level of payments were made, the average increase in per-case PPS payments to hospitals under the Commission's recommendation would be 7.4 percent. ProPAC expects that a large portion of revenue increase associated with case-mix change would be offset by the additional costs of treating sicker patients. The discussion language accompanying Recommendation 4 provides further information on how case-mix change affects hospital revenue and costs.

Table 2. Estimated Fiscal Year 1990 Average Increase in Per-Case PPS Payments Under ProPAC Recommendations

PPS update factor	4.9%
Estimated case-mix index change*	2.5
Total increase in average PPS payments ⁺	7.4

* Congressional Budget Office estimate.

+ Most of the increase in payments resulting from case-mix index change would be offset by the increased costs of treating sicker patients.

In addition to the effect of the update factor, the PPS standardized amounts will increase as a result of the Commission's proposed change in the indirect medical education adjustment. In Recommendation 8, the Commission proposes reducing this adjustment from 7.7 percent to 6.6 percent in a budget neutral fashion. That is, the Commission believes part of the additional payments made to teaching hospitals is no longer appropriate and should be redistributed among all hospitals. ProPAC estimates that the urban standardized amounts will increase by 0.7 percent and the rural amount by 0.1 percent if Recommendation 8 is implemented. Total payments to hospitals would not be affected, however, since payments to teaching hospitals would be reduced. Aggregate per-case payments to major teaching hospitals would be cut by 1.9 percent and payments to other teaching hospitals by 0.1 percent.

The rationale for the components of the Commission's proposed update factor is presented in Recommendations 2 through 5 and accompanying discussions. Under current law, all hospitals would receive a fiscal year 1990 PPS update equal to the increase in the market basket. Adoption of the Commission's update recommendation would therefore require legislative action.

Recommendation 2: Market Basket Structure

The Commission believes the hospital industry wage portion of the market basket should be increased to better reflect changes in hospital and other labor markets. The wage and benefit component of the market basket should be measured using 50 percent Employment Cost Index compensation series for hospital workers and 50 percent non-hospital ECI compensation series

reflecting the types of employees hospitals hire. The Commission also encourages the development of an ECI compensation series specific to hospital professional and technical workers.

This recommendation would change the current construction of the hospital occupational index used in the market basket to measure changes in wages. More weight would be given to wage trends unique to the hospital industry. Skill mix changes, however, would no longer affect market basket increases. Currently, the effect of inflation on hospital wages is measured by a combination of hospital industry and economy-wide wage measures. Hospital wages are about 30 percent of the wage component.

The Commission believes that the current market basket gives inadequate recognition to the unique characteristics of the hospital labor market. The Commission does not believe, however, that inflationary pressure on wages should be represented in the market basket solely by measures of hospital response to those pressures. Rather, giving equal weight to hospital and non-hospital wage measures would appropriately reflect changes in the labor markets where hospitals must establish their wage and benefit levels.

Specifically, the Commission recommends that 50 percent of the hospital occupational index should be represented by an internal (hospital industry) wage measure, the Employment Cost Index compensation series for hospital workers. The other 50 percent should be measured by a combination of external (non-hospital) ECI compensation series reflecting the types of employees hospitals hire. The current market basket uses ECIs that measure only changes in wages. Under this recommendation, ECIs that combine wages and benefits would be used.

This recommendation would increase the internal wage share of the hospital occupational index to 50 percent. Because employee compensation is about 67 percent of the overall market basket, internal proxies would make up about 33 percent of the overall market basket weights. The fiscal year 1990 market basket increase under this recommendation is now estimated at 5.7 percent.

Currently, changes in professional and technical workers' wages are measured by a 50/50 blend of internal and external wage proxies. The blend is 50 percent Average Hourly Earnings (AHE) for non-supervisory hospital workers and 50 percent ECI for professional and technical workers. All other employee categories are measured using only external wage proxies. About 30 percent of the total market basket wage component is measured using an internal wage proxy. The overall internal proxy share is about 16 percent.

The current 50/50 blend of internal and external wage proxies for professional and technical workers wages is technically imprecise. The AHE includes changes in wages for other types of hospital employees, such as secretaries and service workers. The contribution of wage changes for professional and technical workers used in the market basket is thus understated. To be a true 50/50 blend, either a hospital professional and technical worker wage proxy would need to be developed or the internal wage proxy would have to be applied to the appropriate categories of workers. In the case of the AHE, this would be all nonsupervisory hospital workers. In the case of the ECI for hospitals, this would be all hospital employees.

The Commission believes it is inconsistent to treat benefits differently from wages in the market basket since they are both part of an employee's total compensation. Some hospitals, for example, are allowing employees to trade their benefits for a higher salary. In this example, total compensation would not increase, but the current construction of the market basket would recognize this as a wage increase.

ProPAC therefore recommends combining the wage and benefit categories into a single compensation category. The ECI compensation series should be used to measure changes in this new category. The ECI effectively covers all employee compensation expenses: wages, benefits, and bonuses. The wage and benefit coverage is more complete than the wage and benefit price proxies currently used in the market basket. The new category should be assigned a new weight reflecting this expanded coverage of hospital inputs.

An ECI for hospitals has recently been developed, as ProPAC suggested in 1985. In many

respects the ECI for hospitals is preferable to the AHE. First, unlike the AHE, it holds skill mix constant. This is consistent with the construction of the rest of the market basket, which has fixed weights for each non-wage component.

Second, the ECI for hospitals is more inclusive; it covers all types of hospital personnel, as well as both public and private hospitals. The AHE, on the other hand, includes only nonsupervisory employees in private hospitals. While these exclusions from the AHE may not significantly affect changes in the market basket, the broader coverage of the ECI for hospitals is technically preferable.

The Commission also recommends that an ECI component for professional and technical hospital workers be developed. Reliable data of this nature will permit more detailed analysis of wages and benefits for nurses and other employees unique to the health care setting.

A number of potential technical improvements in the PPS market basket should be investigated. They are related to certain types of hospital expenses that the market basket does not appear to measure effectively.

In particular, the use and per unit cost of contract labor by hospitals has grown significantly over the past few years. Because contract labor expenses are included in the "Other Fees" component of the market basket, virtually none of this growth was captured. Most of the expenses in the "Other Fees" component are for contract labor, particularly contract nurses. The price proxy used for the "Other Fees" weight is the ECI for professional and technical workers, which includes very little contract labor.

It may be possible to develop a price proxy that better reflects changes in contract labor expenses. Such a proxy should be consistent with other price proxies used in the market basket. For example, average hourly contract labor expense would be one possible price proxy. Another alternative would be to reclassify contract labor into the new compensation category recommended by the Commission. The weight for the category could be increased as appropriate.

By suggesting consideration of technical issues, the Commission does not mean to propose any departure from the market basket as an input price index. Rather, it is suggested only that certain input prices, and the proportions of goods and services that they represent in the market basket, might be measured better than the current market basket permits. Further, certain inputs might be grouped in expense categories where they more appropriately belong. As always, the Commission would be glad to work with the Secretary in accomplishing these technical improvements.

Recommendation 3: Discretionary Adjustment Factor

For fiscal year 1990, the net allowance for scientific and technological advancement and productivity improvement in the discretionary adjustment factor should be zero.

The discretionary adjustment factor incorporates particular considerations outlined in the statute establishing PPS that relate to scientific and technological advancement and hospital productivity improvement. For fiscal year 1990, ProPAC did not attempt to quantify these components. The data led the Commission to conclude that reasonable ranges of the positive scientific and technological advancement adjustment and the negative productivity improvement adjustment are roughly equal.

The individual adjustments for scientific and technological advancement and hospital productivity improvement are discussed below.

Scientific and Technological Advancement—The scientific and technological advancement allowance is a future-oriented policy target. It provides additional funds for hospitals to improve services by adopting quality-enhancing, cost-increasing health care advances.

As stated in previous reports, the Commission believes that advances resulting in greater hospital efficiency do not require a special allowance since they should lower hospital costs. The effects of cost-decreasing technologies are considered implicitly in the productivity target.

The policy target must ultimately be based on judgment since it is impossible to enumerate all the technologies that meet the Commission's criteria for inclusion and to define their costs precisely. In order to develop a more informed judgment, however, the Commission examines a set of the most important new technologies and scientific developments. Rough estimates of the systemwide cost of the adoption of these new technologies assist the Commission in its assessment of the increment appropriately added to the payment base for hospital care.

Based on this examination, ProPAC estimates that the standardized amounts would need to be increased by 0.3 percent. This estimate includes the effects of substituting new for existing technologies. In the Commission's judgment, the adjustment should also be somewhat higher than this amount to account for new technologies and changes in practice patterns not considered in its analysis.

The Commission's recommendation presumes that, during fiscal year 1990, hospitals will be able to finance part of their expenditures for new technologies from productivity gains. It further presumes that Medicare capital payments will be sufficient to accommodate capital expenses associated with the implementation of cost-effective new technologies and treatments. Finally, the allowance for real case-mix change finances part of the expense associated with cost-increasing, patient-related practice pattern changes.

Hospital Productivity—The productivity allowance in the DAF is also a future-oriented target. Substantial gains in productivity were achieved by hospitals after the initiation of PPS. Since then, there have been declines in real case-mix adjusted productivity in each of the last three years. Nevertheless, ProPAC believes it is appropriate to expect hospitals to achieve modest productivity gains during the coming year. The Commission also determined that the Medicare program should not subsidize decreases in productivity.

The Commission believes that the costs of scientific and technological advancement may be financed by productivity gains. The recommended adjustment assumes productivity gains that are at least twice the range of likely cost increases for

new technology. This reflects the Commission's policy that productivity gains should be shared roughly equally by the Medicare program and the hospital industry.

Recommendation 4: Adjustments for Case-Mix Change

For fiscal year 1990, the PPS standardized amounts should be reduced by 0.7 percent to account for increased payments from case-mix index change. This adjustment reflects:

- **A 3.0 percent reduction for the estimated case-mix index change during fiscal year 1989,**
- **A positive allowance of 1.5 percent for real across-DRG case-mix index change during fiscal year 1989, and**
- **A positive allowance of 0.8 percent for within-DRG case-complexity change during fiscal year 1989.**

The Commission urges the Secretary to continue research that will help measure the components of case-mix change in light of its importance for hospital payments.

The Commission believes that hospital payments should compensate hospitals for increases in patient care resource requirements. Some of this change is measured by increases in the case-mix index, which reflects the distribution of cases across DRGs. This is real across-DRG case-mix index change. The CMI also increases because of changes in medical record documentation or coding practices. Although coding changes, or up-coding, can result in more accurate and complete information on the medical record, it is not real case-mix change because it does not reflect changes in patient care requirements. It is not appropriate, therefore, for payments to increase because of upcoding.

Another component of real case-mix change, within-DRG case-complexity change, is not measured in the CMI. This component reflects increases in patient care requirements that are not captured by the DRGs. Hospitals are not

automatically paid for this portion of real case-mix change. There must be an allowance in the update for hospitals to receive added compensation.

The Commission's recommendation on the adjustment to hospital payments for case-mix change, therefore, has three components. The first component is a negative adjustment for the CMI increase from the previous year. This is removed from the payment base because it includes the effects of upcoding. Two positive allowances are then made for real case-mix change. Total real case-mix change is the sum of across-DRG case-mix index change and within-DRG case-complexity change. This recommendation allows hospitals increased payments for real changes in the resources used to treat patients, but not for changes in medical record documentation and coding practices.

The estimate for CMI change during 1989 is based on preliminary data from HCFA. The CMI in 1988 increased by about 3.6 percent, a significantly higher change than in 1987. Based on this estimate and trends in prior CMI growth, ProPAC projects that the CMI change in 1989 will be 3.0 percent.

The estimate for real across-DRG CMI change is based in part on information from a recent study of real case-mix change sponsored by HCFA and ProPAC. Using medical records collected by the SuperPRO, the contractor reabstracted the data from 1986 and 1987, applying consistent coding techniques. By comparing the reabstracted data with coded data originally submitted by the hospitals, the contractor determined that approximately three-quarters of the observed CMI change for the cases studied over this period was real. This study is discussed in more detail in Appendix A.

These findings overestimate the real case-mix change for all cases in fiscal year 1987 for two reasons. First, the data in the study are incomplete. Data that come in later in the year generally represent higher-weighted DRGs and, therefore, raise the CMI. Second, the study did not control for changes in the information on the medical record. Evidence indicates that physicians and health care providers are supplying more detailed data on the medical record, which can lead to CMI increases.

In addition, applying these results to the 1989 data yields a lower proportion of real case-mix change. The total amount of CMI change for 1989 is considerably higher than the amount observed during the study period. ProPAC believes the main reason for the higher rate of change was the substantial DRG Grouper changes in 1988. CMI change resulting from Grouper changes is not related to increased patient resource requirements. Therefore, the Commission reduced the estimate of the real portion of CMI change to 1.5 percent in 1989.

The estimate for within-DRG case-complexity change is based on another recent study. The contractor developed a range estimate of within-DRG case-complexity change for 1984 through 1987 by applying two alternative patient classification systems to Medicare discharge data, while holding the DRG constant. Over this period the contractor estimated that patient complexity increased between 4.4 and 7.1 percent. Change from 1986 to 1987 accounted for 0.8 to 1.0 percentage points of this increase. This trend was applied to the 1989 data to yield a case-complexity change estimate of 0.8 percent. This study is discussed in more detail in Appendix A.

ProPAC has determined that during the first five years of PPS, CMI change increased hospital payments more than the annual updates and all other policy changes affecting payments combined. Given the importance of case-mix change and the failure of CMI change to diminish as much as expected over time, the Commission is committed to maintaining its research efforts to understand this phenomenon. The Commission found the information from the jointly funded medical record reabstraction study to be valuable in making its recommendation and in understanding case-mix change. The Commission, therefore, urges HCFA to maintain an ongoing examination of case-mix change using the reabstraction methodology.

Recommendation 5: Adjustment to the Level of the Urban Standardized Amounts

The update factor for fiscal year 1990 should include an adjustment to lower the urban standardized amounts by 0.8 percent. No reduction should be applied to the

rural standardized amount. The reduction is the final portion of a three-year phased adjustment previously recommended by the Commission. It reflects the Commission's judgment of how information on average Medicare costs per case from the first year of PPS should be incorporated into the update factor.

This recommendation follows Commission judgments described in earlier reports. In its April 1987 report, the Commission recommended a reduction to the standardized amounts. At that time, ProPAC also recommended phasing in the reduction over a three-year period, beginning in fiscal year 1988. In its March 1988 report, the Commission upheld its judgment, but modified the level of the remaining reduction. The Commission continues to believe that the reduction is appropriate. Due to recent congressional action, however, this year's recommendation also modifies the amount of the adjustment for the final year of the phase in.

The Commission's original recommendation stemmed from a review of data from the first year of PPS. ProPAC recalculated the standardized amounts by replacing updated 1981 costs per case with first-year PPS costs per case. The newly recalculated amounts were, on average, 12.3 percent lower: 13.0 percent for urban hospitals and 7.6 percent for rural hospitals.

In developing its original recommendation for a negative adjustment to the standardized amounts, the Commission considered several factors. First, part of the differential represents the costs of preadmission or post-discharge services that formerly were provided during the inpatient stay but are now delivered at other sites. Inasmuch as the costs of these services are covered elsewhere in the Medicare program, ProPAC thinks that this part of the differential should be removed from the payment rates rather than shared with the hospital industry. Moreover, errors in projecting costs and changes in hospital accounting practices may account for part of the differential.

The treatment of productivity gains was the second factor considered by the Commission. As with its previous update recommendations, ProPAC maintained that the portion of the differential attributed to productivity gains should be shared

between the hospital industry and the Medicare program. Finally, the Commission considered the extent to which relatively low update factors in fiscal years 1986 and 1987 already accounted for part of Medicare's share of the cost differential.

After considering these factors, the Commission recommended that 5.4 percent of the 12 percent cost differential be removed from the standardized amounts over a three-year period. The annual reduction would be 1.9 percent for urban hospitals and 1.1 percent for rural hospitals.

In its March 1988 report, the Commission revised the level of the adjustment to reflect congressional action in setting fiscal year 1988 payment rates. ProPAC believes that in legislating the updates for fiscal year 1988, the Congress implicitly adjusted for more than one-third of the Commission's total recommended reduction. As a result, the Commission recommended an annual reduction for fiscal years 1988 and 1989 averaging 1.1 percent: 1.2 percent for urban hospitals and 0.8 percent for rural hospitals.

This year's recommendation upholds the previous Commission actions, but further revises the level of the adjustment for fiscal year 1990. The revision accounts for the update factor hospitals received for fiscal year 1989. ProPAC believes that in legislating an update factor that was lower than the one it recommended, the Congress implicitly accounted for more than the Commission's recommended reduction for fiscal year 1989.

After considering the fiscal year 1989 update factor, the Commission recommends that no further reduction be applied to the rural standardized amount. Last year, ProPAC anticipated that there would be a 0.4 percent reduction remaining to be incorporated in the fiscal year 1990 update for rural hospitals. But the fiscal year 1989 update factor for rural hospitals already captured this remaining adjustment. Thus, the entire 3.3 percent reduction originally recommended for rural hospitals has been incorporated into the payment rates.

For urban hospitals, however, the Commission recommends incorporating a reduction of 0.8 percent into the update factor for fiscal year 1990. Last year, ProPAC anticipated that there would be a

1.2 percent reduction remaining to be applied in the fiscal year 1990 urban hospital update. Because the fiscal year 1989 urban hospital update captured 0.4 percent of this amount, the adjustment remaining for fiscal year 1990 is 0.8 percent. Incorporating this amount would complete the entire 5.7 percent reduction the Commission originally recommended for urban hospitals.

The disparate effects that recommendations like this one have across hospitals continue to concern the Commission. An across-the-board adjustment may have a detrimental effect on some hospitals, while others could absorb a larger reduction. Distributional concerns have become even more important as hospital operating margins are falling. The Commission will continue to recommend improvements in the PPS payment formula and examine other factors that might cause financial difficulties for particular types of hospitals.

Recommendation 6: Additional Update for Hospitals in Large Urban Areas

For fiscal year 1990, urban hospitals in Metropolitan Statistical Areas with more than 1 million people should receive an update 0.5 percent higher than hospitals in other MSAs. This should be accomplished by a 0.2 percent increase to the standardized amount for large urban areas combined with a 0.3 percent reduction to the other urban standardized amount.

The higher costs of hospitals located in large urban areas are not fully recognized by current PPS payment policy. Because a differential update factor is an imprecise method of adjustment, more research should be undertaken to further the understanding of the sources of higher costs in these areas. Simultaneously, a broad review of PPS payment equity should be undertaken, including consideration of overlap among current payment adjustments.

PPS accounts for most, but not all, the difference in costs observed between hospitals in large urban areas and other urban hospitals. Adjustments are made for variations in DRG case mix, area wage differences, teaching effort, and low-income patient share.

Because the source of the remaining cost differences is not fully understood, a differential urban update factor by MSA population should be continued. The goal of separate updates is to bring the 20 percent per-case PPS payment differential between these groups closer to the 23 percent per-case cost differential.

For fiscal year 1990, ProPAC recommends an urban hospital update differential of 0.5 percent. The Commission believes that adjustments to improve the equity of PPS payments should not change total payments to hospitals. Therefore, the 0.5 percent differential update recommendation is accomplished by a positive 0.2 percent adjustment for hospitals in large urban areas, combined with a negative 0.3 percent adjustment for other urban hospitals. This combination will increase payments to hospitals in large urban areas relative to other urban hospitals without substantially affecting either total PPS payments or the relationship between average urban and rural payments. The Commission will consider the appropriateness of continuing the urban update differential on an annual basis as part of its update factor recommendation.

ProPAC recognizes that separate updates for hospitals in large and small MSAs is a crude method to address cost differences. Nevertheless, its review of the data did not suggest a better way to define MSA population categories or to otherwise adjust for the cost differences. Research must continue to attempt to identify which factors associated with MSA size account for the cost variation.

Data reviewed by the Commission suggesting that additional payments may not be justified for hospitals in the largest MSAs raise some particularly complex issues. Even after accounting for their higher costs, hospitals in MSAs with at least 5.0 million people receive PPS payments that are relatively generous compared with payments to other urban hospitals. Further analysis should examine variation within this group of hospitals, the extent to which MSA boundary definitions contribute to the findings, and whether a population of 5.0 million is the most meaningful threshold. Such analysis should also address the extent to which relatively high payments to these hospitals result from the current levels of PPS adjustments for indirect teaching, low-income patient share, and outlier cases. Any consideration of a policy to treat

hospitals in these largest MSAs different from hospitals in other large urban areas must take into account the potential impact of such a policy on continued access to care by Medicare beneficiaries.

The distribution of PPS payments among hospitals has become more important now that the transition to national average rates is complete. Moreover, equity issues will become increasingly critical to PPS policy as constraints on Medicare spending continue. Medicare's prospective payment system includes a series of adjustments intended to ensure that payments to hospitals are equitable. The adjustments are imprecise, in part because the variation in costs is not fully understood.

Thus, ProPAC's efforts to examine the appropriateness of specific PPS payment adjustments will continue. The Commission will further investigate and comment on specific issues related to the indirect teaching and disproportionate share adjustments, the area wage index, outlier payment policy, and case-mix measurement issues. The overlap and interaction among these PPS payment adjustments will also be examined.

The equity of PPS payments should be considered more broadly as well. Many of the issues discussed in this report are not limited to distinctions based on MSA population. For example, hospital costs vary between core and ring areas within MSAs, by region, and by bed size. Research must continue to improve understanding of why certain hospital characteristics are associated with higher costs, and which characteristics are most appropriately recognized in the payment system.

A complete examination of hospital payment equity should go beyond studies of PPS payment policies. Many other factors contribute to the overall financial condition of hospitals. The Medicare program should not be expected to solve all financial problems facing the hospital industry. But other issues potentially affecting continued access to hospital care for all Americans should not be ignored.

More complete analysis and discussion of the issues addressed by this recommendation appear in

ProPAC's report to the Congress, *Separate PPS Payment Rates for Hospitals in Large Urban Areas and Other Urban Areas*, December 1988.

Recommendation 7: Update Factor for Excluded Hospitals and Distinct-Part Units

For fiscal year 1990, the target rate of increase for excluded hospitals and distinct-part units should be determined separate from the PPS update factor. The rehabilitation, psychiatric, and long-term facilities' target rate of increase should reflect the projected increase in the hospital market basket for these hospitals corrected for fiscal year 1989 forecast error. The target rate of increase for children's hospitals should reflect the projected rate of increase in the PPS hospital market basket corrected for forecast error.

Based on the Commission's most current information, the recommended rate of increase for psychiatric, rehabilitation, and long-term facilities would be 6.2 percent for fiscal year 1990. The recommended increase for children's hospitals would be 6.3 percent.

The Commission's update factor recommendation for PPS-excluded hospitals and distinct-part units is determined primarily by projected increases in the market baskets for these facilities. ProPAC continues to believe that the rates of increase should include a correction for substantial errors (those that equal or exceed 0.25 percentage points) made in the previous year's forecast.

The Commission maintains that, for most excluded hospitals and distinct-part units, the market basket should be different from the PPS market basket. Although the differences between the two forecasts are now marginal, this may not always be the case. Therefore, it is important to continue to forecast separate market baskets so that future differences can be captured. In addition, ProPAC urges the Secretary to continue studying the feasibility of developing separate market baskets for excluded rehabilitation and psychiatric facilities. The Commission still believes that the PPS market basket is appropriate for children's hospitals.

ProPAC has also developed a discretionary adjustment factor for excluded facilities. This DAF includes allowances for scientific and technological advancement and productivity improvement. These allowances are both future-oriented targets. The scientific and technological advancement factor reflects ProPAC's judgment on the financial requirements for hospitals to implement quality-enhancing but cost-increasing technologies. The productivity factor reflects achievable productivity gains resulting from the cost containment incentives inherent in the target rate of increase limits.

Analyses of these factors led the Commission to conclude that cost increases due to scientific and technological advancement should be offset by productivity improvement. Therefore, the DAF is set at zero for fiscal year 1990.

The Commission's recommended update is entirely dependent on fiscal year 1990 market basket forecasts and corrections for errors in the fiscal year 1989 market basket forecasts. The market basket forecast used to set fiscal year 1989 targets was 5.4 percent. The most recent forecast for fiscal year 1989 is 5.9 percent, or 0.5 percentage points higher than the original amount.

Using the Commission's methodology of correcting for errors in forecasts of market basket components external to hospitals, the forecast error correction factor is 0.4 percent. This amount, added to the current excluded market basket forecast of 5.8 percent, results in a recommended 6.2 percent target rate of increase for rehabilitation, psychiatric, and long-term facilities. Market basket estimates are likely to be modified as more recent data and forecasts become available. In addition, the forecast for fiscal year 1990 exempt market baskets will be further modified as a result of Recommendation 2.

The forecast for the fiscal year 1990 PPS market basket increase is 5.7 percent. The forecast error correction factor for fiscal year 1989 is 0.6 percent. Therefore, the recommended target rate of increase for children's hospitals is 6.3 percent.

The Commission continues to believe that adjustments for case-mix change are inappropriate for excluded facilities. Since these facilities are not

reimbursed on the basis of DRGs, changes in case mix do not influence their payments. However, ProPAC believes that an examination of the changes in the medical care needs of patients in these facilities is warranted.

Finally, the Commission believes a review of the impact and effectiveness of the target rate of increase limits is necessary. ProPAC will begin this evaluation by analyzing data related to changes in costs and payments for excluded facilities and distinct-part units. The Commission will report its findings in its June 1989 report to Congress, *Medicare Prospective Payment and the American Health Care System*.

Adjustments to the PPS Payment Formula

Recommendation 8: Indirect Medical Education Adjustment

The Commission recommends that the Secretary seek legislation to reduce the indirect medical education adjustment from its current level of 7.7 percent to 6.6 percent for fiscal year 1990. This reduction should be implemented in a budget neutral fashion, with the savings returned to all hospitals through corresponding increases in the standardized amounts.

Under PPS, teaching hospitals receive an adjustment to their payments based on their level of teaching effort. This adjustment recognizes the higher costs of teaching hospitals that are associated with teaching effort. Among the factors contributing to these higher costs are the greater use of ancillary services, a more severely ill patient mix, location in inner cities, and a more costly mix of staffing and facilities.

Decisions to modify the indirect medical education adjustment should be based on several important policy considerations. First, the medical education adjustment should be based on an empirically derived estimate of the relationship between teaching effort and Medicare cost per case, using the most recent cost data available. At this time, the Commission supports the use of the "payment model" as the analytic approach to estimate the effect of teaching effort on Medicare cost per case.

A second consideration is that of equity in the distribution of payments to hospitals. The indirect medical education payment adjustment has been funded through a reduction in the standardized amounts paid to all hospitals. The adjustment represents a redistribution of payments to teaching hospitals at the expense of payments to nonteaching hospitals. A reduction in the level of the teaching estimate, therefore, suggests that teaching effort is explaining less of the difference in the costs of teaching compared with nonteaching institutions than the current level of the adjustment would suggest.

In order to ensure equitable distribution of payments to hospitals, a reduction in the indirect medical education adjustment should be accompanied by a redistribution of these dollars through corresponding increases in the basic payment to all hospitals. If this budget neutrality adjustment is not made, then the average payment to all hospitals would be inappropriately lowered.

Another factor to consider is the financial impact of lowering the adjustment for teaching hospitals. Analysis has shown that through the third year of PPS, teaching hospitals had significantly higher PPS margins than nonteaching hospitals. Examination of more recent data on overall financial status, however, shows that major teaching hospitals have considerably lower total margins when compared to other teaching and nonteaching hospitals. Lowering payments to teaching hospitals should be weighed in light of the impact such action would have on the quality of and access to care for Medicare beneficiaries.

Using the payment model and 1986 Medicare Cost Report data, the Commission obtained a teaching estimate of 4.4 percent. Further analysis revealed that reduction of the medical education adjustment from the current level of 7.7 percent to 4.4 percent would have a dramatic effect on payments to major teaching hospitals. The results of ProPAC's analysis appear in Appendix A.

Concern about the impact of precipitously lowering payments to teaching hospitals led the Commission to recommend only one-third of the total reduction implied by the current estimate of 4.4 percent this year. Further reductions in future years

should be made only after carefully reevaluating the models, the analytical results, and the impact such changes would have on the financial position of these hospitals.

The Commission's decision not to recommend a full reduction this year is based on several considerations: (1) the need to phase in any substantial reduction in the medical education adjustment, (2) the need to continue to examine the relationship between teaching effort and Medicare cost per case, and (3) the need to assess the effect of the reduction in the adjustment on teaching hospitals' overall financial viability. The Commission believes that both the empirical estimate and the impact analysis should play major roles in establishing the level of the medical education adjustment.

The Commission will undertake a thorough analysis to examine the current and alternative methods for estimating the relationship between teaching effort and Medicare cost per case. It will also continue to assess the financial impact of lowering the medical education adjustment on teaching hospitals.

Recommendation 9: Outlier Payment Policy

The Commission believes that the modifications in the outlier payment methodology that were implemented during fiscal year 1989 represent an improvement in the payment system. The Secretary should continue to examine methods for improving the effectiveness of outlier payment in accomplishing its two major objectives: protecting hospitals from the risk of extraordinarily costly cases, and protecting types of patients who are more likely to be extraordinarily costly from a potential decrease in access to inpatient hospital services. This examination should include a review of the fundamental structure of outlier payment policy.

The modifications in the outlier payment methodology that were implemented during fiscal year 1989 represent a significant change in how outlier payments are made under PPS. The marginal cost factor for cost outliers was increased from 60 to 75 percent (except for outliers in the burn-related

DRGs, for which the marginal cost factor is legislatively set at 90 percent). In addition, cases qualifying for payment under both the day and cost outlier criteria now receive the higher of the two payment amounts, rather than the day outlier amount. Both of these changes increase the emphasis on cost rather than length of stay in determining outlier payments. The use of a hospital-specific cost-to-charge ratio rather than a national average ratio increases the accuracy with which costs are estimated from the charge data available on each Medicare bill.

These modifications, in the context of a limited outlier pool, required that the day and cost outlier thresholds be increased substantially, focusing outlier payments on the most extreme cases and away from those that are less extreme.

As a result of these changes, the distribution of outlier payments across hospitals is expected to be substantially affected. The distribution of outlier payments is an important consideration. Nevertheless, the effectiveness of outlier payment in reducing financial risk (both that borne by hospitals and that represented by specific groups of patients) should be the primary criterion for evaluating both recent and future changes in the outlier payment policy.

While the effectiveness of outlier payment has been improved, some basic issues related to outlier policy have not yet been resolved. Research conducted by ProPAC staff indicates that the risk of incurring large losses on individual cases is neither spread evenly across hospital groups, nor equally across DRGs.

Therefore, the Commission urges the Secretary to continue to examine outlier payment policy. In addition, the Commission will continue its own study of outlier policy, focusing on several areas that are crucial in the evaluation of recent changes and the development of potential improvements.

The Commission will review the fundamental structure of outlier payment. This review will include an examination of whether the current policy is appropriate in light of the magnitude and distribution of the risk faced by hospitals under prospective payment. The Commission will also examine the appropriateness of the current policy

that results in outlier cases invariably creating financial losses for hospitals.

A primary item on ProPAC's outlier payment research agenda is the development of a measure of risk that appropriately balances the different types of risk that hospitals face. Some hospitals tend to attract unusually costly cases, and thus are more likely to incur large losses on individual cases. Other hospitals are vulnerable because their volume of Medicare patients is too small to allow them to withstand the financial burden of even a few unusually costly cases.

In this context, the possibility of different outlier thresholds for urban and rural hospitals will be investigated. As suggested by the Secretary in the PPS proposed rule for fiscal year 1989 [53 F.R. 103, 19516 (1988)], ProPAC will study whether urban and rural hospitals are equally protected against risk under current policy, and whether differential thresholds would increase the equity of payment.

Given the increasing emphasis on the cost outlier thresholds in determining outlier payment, alternative specifications of these thresholds will also be examined. These alternative specifications—including those based on the loss associated with the case, rather than a fixed cost level—will be evaluated according to their effectiveness in equalizing the risk borne by different types of hospitals.

ProPAC's study of the incremental cost of inpatient care will continue, in order to help develop a better understanding of the marginal cost of care and to aid in the determination of appropriate marginal cost factors.

ProPAC will also continue to investigate the appropriate size of the outlier payment pool. The trade-off between the increased protection against risk offered by a larger outlier pool and the accompanying decrease in the basic PPS payment rates requires careful evaluation.

Another topic that merits attention is the method of financing outlier payments. Current evidence indicates a strong correlation between the incidence of outlier payments in specific DRGs and the overall discrepancy between payments and costs

for all cases in the DRG. Although the incidence of outlier payments is much higher in some DRGs than in others, the basic PPS payment rates are reduced by an across-the-board percentage (for urban and rural hospitals separately) in order to finance outlier payments. Thus, payments for cases in "high-outlier" DRGs are, in effect, subsidized by the reduction in payments for cases in "low-outlier" DRGs.

Finally, the greater emphasis on costs derived from charges to determine outlier payment may give hospitals an incentive to raise charges or to alter their charge structures in order to increase their outlier payments. The data show that hospital charges have increased steadily and rapidly for several years, with no apparent relation to prospective payment, and before incentives related to outlier payment existed. Nevertheless, ProPAC will monitor increases in hospital charges across types of hospitals and types of services to determine whether hospital charging practices have changed due to the outlier payment policy.

As in the past, the Commission will be pleased to work with the Secretary in pursuing these and other analytic issues related to improving the outlier payment policy.

Data Collection and Measurement

Recommendation 10: Updating the Area Wage Index

The Commission strongly urges the Secretary to collect more current data on hospital wages and hours of employment, and to use these data to update the wage index for fiscal year 1990. The Secretary also should develop a permanent mechanism for obtaining accurate hospital wage data annually. In addition, the Commission urges the Secretary to update the wage index at least every other year.

Accurate and timely wage and employment data are essential to the maintenance of equitable payment rates for hospitals located in different labor market areas. The PPS annual update factor adjusts the DRG payment rates for the projected national average increase in hospital wage levels. It does not, however, address changes in local conditions that may affect wage levels differentially across

labor market areas. This function is performed by the area wage index.

The area wage index is one of the most important adjustments affecting the level of DRG payments to hospitals located in different areas. Based on the expenditure weights for the components of the hospital market basket index, local wage levels are assumed to affect approximately 75 percent of a hospital's inpatient operating costs. Accordingly, the area wage index is applied to adjust approximately 75 percent of a hospital's payment rate in each DRG. Thus, a 10 percent change in the wage index would result in an increase or decrease of approximately 7.5 percent in the hospital's total DRG payments.

Because the relevant hospital wage and employment data have not been collected on an annual basis in the past, it is not clear how volatile area wage levels may be from year to year. However, for making payments during fiscal year 1988, the Secretary adopted a blend of area wage indexes on the grounds that the use of a blended wage index would cushion the impact of the change from an index based on 1982 data to one based on 1984 data. This suggests that changes in area wage levels over a two-year period can be substantial in some labor market areas.

Since PPS began, the area wage index has been updated only twice (fiscal years 1986 and 1988), and it has always been based on data that were at least three years old. In fact, the wage index data in use for fiscal year 1989 reflect, on average, the pattern of relative wage levels that prevailed six years earlier.

The Commission believes that continual use of old wage data and infrequent revision of the wage index result in two problems. First, payments to hospitals are not adjusted promptly to reflect changes in local labor market conditions. This leads to inequities in payment among hospitals; hospitals in some areas suffer losses, while hospitals in other areas receive benefits that are unrelated to their operating performance. Second, infrequent revision of the wage index often results in large changes in wage indexes for individual labor market areas. These abrupt changes in wage indexes and payment rates are regarded as especially disruptive for hospitals located in areas where the wage index is reduced.

To avoid these problems, the Congress recently enacted a provision in OBRA 1987 that requires the Secretary to conduct a new wage survey to update the area wage index for fiscal year 1991, and at least every three years thereafter. While it agrees with the intent of this provision, the Commission is concerned that acute shortages of personnel in certain hospital occupations may have led to increased volatility in wage levels, particularly in some labor market areas.

Therefore, the Commission believes that wage surveys and index updating may be needed more frequently than the statute requires. The Commission urges the Secretary to work closely with representatives of the hospital industry and related organizations (including representatives of hospital employees), to develop a permanent mechanism for collecting accurate hospital wage and employment data annually. In addition, the Secretary is urged to update the wage index at least every other year.

Recommendation 11: Improving the Cost Data Used for Decision Making

The Secretary should initiate the developmental work necessary to secure the future role of the Medicare Cost Report as a vital information source for policy evaluation and decision making. Although the cost report was originally developed and continues to be used as a reimbursement tool, it is also increasingly used as a source of data. This trend will continue and should be encouraged. Efforts to improve the Medicare Cost Report should attempt to minimize the administrative burden on hospitals, fiscal intermediaries, and the Federal government.

The role of the Medicare Cost Report is changing from a reimbursement tool to a vital information source for payment policy evaluation and decision making. The original purposes of the MCR were to determine reasonable costs, as defined by Medicare, and to calculate Medicare's share of these costs. As such, the cost report is designed to collect and report costs at the hospital department level. These costs are then aggregated to determine total facility reimbursement.

Under Medicare's prospective payment system, however, the MCR serves a dual purpose. It continues to be used for reimbursement of selected costs, such as capital, direct medical education, and outpatient services. But it also provides the only information on hospital costs of treating Medicare beneficiaries, based on Medicare payment principles. There are inherent limitations in using MCR data for policy analysis and decision making, however. Most limitations arise because PPS analyses require information on hospital costs at the patient level, whereas the MCR collects costs at the departmental level.

The Commission recognizes that the cost report will be necessary for reimbursement of selected costs for at least the next three to five years. Nevertheless, ProPAC believes that, over the long term, the cost report should be modified to improve its usefulness for decision making. Adequate resources must continue to be committed to this effort or deterioration in data quality and consistency is a likely outcome.

Modifying the cost report is a major undertaking requiring significant planning and evaluation. It requires determining data needs for decision making and reconciling these needs with the desire for data consistency, accuracy, and timeliness, as well as reduced reporting burden. The Secretary should, therefore, initiate efforts now to resolve these issues and move toward improved data for policy evaluation and decision making. In doing so, the Secretary should ensure that sufficient funding is available to maintain the integrity of existing data as well as to improve these data in the future.

There may be portions of the MCR that could be eliminated now or over time. Similarly, modifications to the cost report could be phased in as changes in Medicare reimbursement methods occur. Some modifications, such as collecting data on hospital wages, are warranted immediately.

Any attempts to modify the MCR should consider several issues, including administrative burden, reporting incentives, existing hospital reporting mechanisms, and the need for consistent data. Hospitals, fiscal intermediaries, and the Federal government already face complex reporting requirements, some of which could be streamlined or

eliminated. Changing the role of the MCR from a reimbursement tool to an information source for decision making will result in different reporting incentives for hospitals. As the MCR becomes less important for reimbursement, hospitals may compromise reporting accuracy. Education of the industry on the implications of MCR data for future Medicare payment policy, therefore, is essential. Further, revisions to the cost report should, to the extent possible, complement other hospital reporting mechanisms already in place. Finally, changes to the MCR should recognize the need for data consistency to maintain the integrity of longitudinal analyses.

Recognizing the need to improve the use of MCR data, ProPAC has undertaken efforts to identify distortions and inconsistencies in the cost data and potential improvements to these data over time. Further, as required by OBRA 1987, the Secretary is conducting a three-year demonstration project on the costs and benefits of adding to the cost report financial and utilization information pertaining to other payers. ProPAC will continue to devote resources to understanding current MCR data and improving future data. The Commission encourages the Secretary to provide adequate resources, including funding for fiscal intermediaries, to ensure the accuracy and timeliness of cost report data. For additional information, refer to ProPAC's technical report, *Review of Medicare Cost Report Data for Policy Analysis*.

Recommendation 12: Improvements in Case-Mix Measurement

The Commission urges the Secretary to begin immediately to thoroughly evaluate the potential consequences of adopting DRG refinements recently developed at Yale University. Preliminary results from this project appear to be positive. Much work remains to be done, however, to understand all the implications of applying these refinements to PPS. The Commission will be pleased to cooperate fully with the Secretary to further this effort.

In recent years HCFA has funded a number of research projects aimed at improving the measurement of hospital inpatient case mix and severity of

illness. One such project, recently completed at Yale University, has developed a major revision of the diagnosis-related groups patient classification system.

The revised DRG definitions are based on refinements in the treatment of secondary diagnoses indicating the presence of comorbid or complicating conditions (CCs). In the revision, patients in each medical or surgical group within a Major Diagnostic Category are assigned to one of three or four subcategories (DRGs) based on whether they had a catastrophic, major, moderate, or minor/no CC. In addition, all patients who had a temporary tracheostomy and all nonsurgical patients who died within 48 hours after admission are grouped in two separate DRGs within each MDC.

Preliminary results indicate that these refinements substantially improve the ability of the DRGs to distinguish patients who are expected to have relatively high resource needs (those with temporary tracheostomy or a major CC) or relatively low resource needs (early deaths among nonsurgical patients) from other patients (those with moderate, minor, or no CCs). Therefore, adoption of the revised DRGs could provide a substantial improvement in the accuracy and equity of payment among hospitals under PPS. However, it also could have a number of other important effects.

For example, adoption of revised DRGs may require conforming changes in other features of the payment system. To the extent that the revised DRGs improve the measurement of case mix and severity of illness, the role of other payment adjustments, such as the indirect teaching and disproportionate share adjustments, may need to be reevaluated. Similarly, if the revised DRGs are much more effective in identifying extremely high-cost cases, the outlier payment policy may need to be revised. Adoption of the revised DRGs also could affect the size of the standardized cost differentials between urban and rural hospitals under PPS.

The Commission believes that the resolution of these issues could have a substantial effect on equity of payments among hospitals. Therefore, ProPAC urges the Secretary to begin as soon as possible to evaluate all the major potential effects of adopting the revised DRGs under PPS.

Recommendation 13: Reassignment of Patients with Guillain-Barre Syndrome

The Secretary should reassign patients with Guillain-Barre syndrome from DRGs 18 and 19 to DRG 20, DRG 34, or a new DRG.

Guillain-Barre syndrome (GBS) is a post-infectious polyneuropathy in which patients may require plasmapheresis, ventilation assistance, and long intensive care stays. GBS discharges have been assigned to DRGs 18 and 19 (cranial and peripheral nerve disorders with and without CC). The Commission believes that the classification of GBS cases into DRGs 18 and 19 is inappropriate in terms of resource use.

The resource use associated with GBS cases is quite different from the resource use for average cases in DRGs 18 and 19. The payment hospitals receive under DRGs 18 and 19 is inadequate for most GBS cases. The Commission has examined DRGs 20 (nervous system infection except viral meningitis) and 34 (other disorders of nervous system, with CC) as alternatives for GBS cases. Assignment of GBS cases to these DRGs would better reflect the resource use of these cases and would be acceptable clinically. However, a new DRG would be a satisfactory classification alternative.

The Commission is also concerned about a subset of GBS cases: those with tracheostomy. The GBS tracheostomy cases are extremely resource intensive. Currently, DRG 474 (tracheostomy) applies to tracheostomy cases in MDC 4 (respiratory) only. The Commission is aware that all temporary tracheostomy cases may be reassigned in the next several years when other classification changes are made. The Commission believes that reassignment of all GBS cases will provide a short-term partial solution to the payment inadequacy of the GBS tracheostomy cases. In the long term, however, the Commission thinks it would be more appropriate to classify GBS tracheostomy cases with other tracheostomy cases.

Quality of Care

Recommendation 14: Evaluation of PRO Review of Quality of Care

The Secretary should evaluate the impact of the Peer Review Organizations on quality of care. Intensified analysis of the PRO findings and validation of the PRO quality review process should be included in the evaluation. The validity, reliability, and efficiency of the PRO quality screens should receive special emphasis in the evaluation. In addition, the Secretary should continue to develop, test, and implement more sophisticated methods of inpatient and outpatient quality review. He should also develop additional mechanisms to identify and evaluate quality of care beyond the immediate period of hospitalization, placing more emphasis on outcomes of care.

For the first five years of the prospective payment system, the Peer Review Organizations have been assigned an important role in protecting quality of care. It is therefore essential to focus attention on the PRO impact on quality of care through an independent, comprehensive evaluation. The evaluation should consider issues of access to and use of services, patterns of denials, and instances of poor quality of care. The results of the synthesis and evaluation of these topics should be made public.

The generic quality screens currently used by the PROs appear to be relatively inefficient measures of quality of care. The Commission is concerned about both the technical adequacy and the process of applying the generic quality screens. Studies by the SuperPRO and by ProPAC have identified several technical problems with the screens. First, they are relatively inefficient. That is, reviewers must examine a large percentage of case records to identify relatively few quality problems. Second, there is inconsistency among PROs in application of several of the screens. Finally, the screens may fail to identify a substantial number of quality of care problems. These issues warrant a careful evaluation of the effectiveness of the quality screens at this time.

The Commission is pleased that HCFA is developing a possible replacement or enhancement for PRO quality review though its work on the Uniform Clinical Data Set. This extensive data set, derived from the medical record, will be applied to a set of detailed clinician-developed algorithms to identify cases for PRO review. It will also provide a rich data source for research. ProPAC applauds this development. Focus on aggregate statistics of resource use, process of care, and outcomes is appropriate and represents a major step forward. In the Commission's view, this more sophisticated method of inpatient quality review should be pursued. PROs should be adequately funded to carry out their new responsibilities and to ensure the success of these enhanced programs.

ProPAC is also concerned about the need for intensified analysis of the outpatient surgery generic quality screens and the development of uniform comprehensive guidelines for applying these screens. The Commission's suggestions concerning outpatient quality review are described in the discussion of Recommendation 16. The April 1, 1989 report, *Medicare Payment for Outpatient Hospital Surgery, The Views of the Prospective Payment Assessment Commission*, will describe ProPAC's concerns on this subject in more detail.

Rural Hospitals

Recommendation 15: Rural Hospitals

The Commission is concerned about the problems affecting rural hospitals and the rural health care system, as well as the implications of these problems for access to needed health care. The Commission recognizes that these problems extend beyond PPS and Medicare. The Commission urges the Secretary to continue the Department's rural health care research and policy agenda. Meanwhile, the Commission will continue its analysis of the effects of PPS on rural hospitals.

Of the multitude of pressures that rural hospitals face, only a portion are attributable to PPS. The demographic and economic environment of rural communities is changing. An aging population, eroding patient base, and changing rural economy

are among the forces influencing the long-term viability of rural hospitals.

In a recent report by the Senate Committee on Aging, the characteristics of many rural communities were found to place special pressures on rural hospitals. For example, compared with urban areas, rural areas not only face higher rates of poverty and unemployment, but have a more elderly population. Rural areas also have a lower percentage of insured residents and more acute health personnel shortages.

As a result, small rural hospitals are often unable to operate efficiently because of insufficient patient volume, manifested in low occupancy levels. The inability of some rural hospitals to operate efficiently may result in eventual closure and the potential loss of patient access to needed care. Policies affecting rural hospitals must balance access to care in rural areas with improved hospital efficiency.

Initiatives are under way to explore strategies that will help rural hospitals meet these challenges. Both publicly and privately funded, many of these projects involve innovative plans to strengthen or adapt health care delivery to meet the changing needs of rural communities. Some of these projects also encourage cooperative efforts between communities and providers.

At the Federal level, responsibility for issues that directly and indirectly touch on rural health care is distributed throughout the Department of Health and Human Services. The relatively new Office of Rural Health Policy and the Secretary's National Advisory Committee on Rural Health will help to focus the Department's attention on rural health care conditions. The Commission encourages the Secretary to continue the Department's research and policy agenda and the coordination of rural health care activities within the Department.

The Commission remains concerned about the relatively poor financial performance of rural hospitals under PPS and intends to continue its analysis of rural hospital issues. The Commission will focus particularly on the appropriateness of PPS for small rural hospitals. Those hospitals are more vulnerable to wide fluctuations in volume and case

mix than larger hospitals. Small rural hospitals have also generally had the lowest average Medicare operating margins over the first three years of PPS. Ten percent of rural hospitals with fewer than 50 beds have had PPS margins of -45 percent or lower.

Other rural issues the Commission intends to address include further examination of the urban-rural differential in the standardized amounts, evaluation of the criteria for obtaining Sole Community Hospital status, and the adequacy of payment levels for Sole Community Hospitals.

Ambulatory Surgery Payment

Recommendation 16: Medicare Payment for Hospital Outpatient Surgery

Beginning in fiscal year 1990, Medicare payment for the facility component of hospital outpatient surgery, including capital, should be entirely prospective. Separate rates should be established for each of the six groups of surgical procedures proposed for payment of services furnished in free-standing ambulatory surgery centers (ASCs). The hospital outpatient surgery rates for fiscal year 1990 should be based on a blend of hospital-specific costs, average hospital costs, and the rate paid to ASCs.

The rates should be updated annually following the approach used under PPS. The overall level of the prospective rates should be set so that the sum of Medicare and beneficiary payments to hospitals would be the same in fiscal year 1990 as they would have been under current policy. Payments should reflect differences in area wages.

These changes in hospital outpatient surgery payment policy should apply to the list of ASC-approved procedures only; the existing Medicare payment provisions should continue for non-list procedures. The Commission is not recommending differential treatment of eye and ear specialty hospitals.

Recognizing the need for greater control of Medicare outpatient expenditures, the Congress mandated several modifications to policy related to payment of surgery performed in hospital outpatient departments (OPDs). OBRA 1986 modified nonphysician payment for some surgical procedures performed in the hospital outpatient department, referred to as the facility payment component. Hospital payments for outpatient surgery were linked to the prospective method and amounts paid to freestanding ambulatory surgery centers.

The OBRA 1986 changes took effect with hospital cost reporting periods beginning on or after October 1, 1987. Payments for surgical procedures on the list of ASC-approved procedures are based on the lesser of two amounts: reasonable costs or charges, or a blend of reasonable costs or charges and the ASC payment rate. Currently, there are four ASC payment groups and rates. HCFA proposes to expand these to six groups and to update the payment rates by 5.5 percent [53 F.R. 160, 31468 (1988)]. For the first year, hospital payments are based on a blend of 75 percent hospital-specific costs and 25 percent of the ASC payment rate. In the second year and thereafter, the blend moves to 50/50.

Congress asked ProPAC to provide its views on prospective payment for hospital outpatient surgery. The Commission will submit a complete report on hospital outpatient surgery payment policy by April 1, 1989. This recommendation and Recommendation 17 summarize those views, which will be further elaborated in the forthcoming April report. ProPAC plans further work on the issue of ambulatory surgery payment as it pursues its agenda for overall outpatient payment reform.

The Commission believes that the proposal it has set forth in this recommendation for hospital outpatient surgery payment is an improvement over current policy. It is an interim approach that embodies aspects of prospective payment, but also provides for longer-term consideration of surgery in the context of overall outpatient payment reform. Finally, ProPAC's recommendation is an outgrowth of current policy, thereby providing some continuity for hospitals that are attempting to manage under the complex and dynamic environment of outpatient payment.

The Commission recommends that the proposed six ASC payment groups be used to classify ambulatory surgery patients for hospital payment purposes. Payments to hospitals for outpatient surgery should be entirely prospective based on an equal blend of the following: hospital-specific costs for each of the six ASC payment groups; national average hospital costs for each of the ASC groups; and the proposed ASC payment rates for each of the ASC groups. The level of the rates should be adjusted so that the sum of Medicare program payments and related beneficiary cost sharing is the same as estimated under current policy. The rates should be updated annually. Since the rate is entirely prospective, the current payment criterion to pay "the lesser of" costs, charges, or the blended rate should be eliminated.

The Commission believes that a prospective rate gives hospitals the opportunity to earn a profit or risk a loss, thereby enhancing incentives to reduce the costs of ambulatory surgery. At the same time, this approach recognizes that many factors potentially contribute to the higher costs of OPDs compared with ASCs. Among them are patient severity, efficiency, maintaining standby capacity, overhead allocation methods, uncompensated care, capacity utilization, billing and coding practices, and bundling of services. How these factors affect cost of care is not well understood.

Basing payment partly on hospital-specific cost experience recognizes cost differences across individual hospitals. The average hospital payment portion reflects differences between OPD costs and ASC payment rates. Average OPD costs are now about 38 percent higher than the ASC rates. Basing part of the payment on the ASC payment rates places continued financial pressure on hospitals to lower their costs so that they are equal to or below those of ASCs. In summary, the Commission believes that basing payment on these three amounts appropriately recognizes the lower rates paid to ASCs as well as historical cost differences between OPDs and ASCs.

As for controlling expenditures, the overall level of the payment rates should be adjusted so that total payments to hospitals do not exceed what payments would be under the current 50/50 blended rate. Furthermore, updating the prospective rate annually allows control in the growth of Medicare

outpatient expenditures. While such an approach does not control volume, it does provide incentives for cost containment until a volume-based system can be developed.

Payments should be adjusted to reflect differences in area wages. ProPAC analysis indicates that this adjustment is effective in narrowing cost/payment differences across hospital groups. Further, analysis by others indicates that area wage differences explain a large share of the variation in hospital outpatient surgery costs. The Commission is not recommending additional adjustments at this time. Further study is necessary to understand factors contributing to cost variations across hospitals.

Capital costs should be included in the hospital-specific and average hospital rates specified above. Currently, hospitals are reimbursed for 50 percent of their actual capital costs related to outpatient surgery under the blended rate method. The ASC rates already include capital. Future payment updates should reflect this capital component.

The recommended changes in hospital outpatient surgery payment policy apply only to the list of ASC-approved procedures. This list captures major surgical procedures. Procedures not on the list tend to occur infrequently, are low cost, and may be better treated the same as other outpatient services. Furthermore, procedure-level data are not readily available to determine payment rates for procedures not on the ASC list.

The Commission recommends that eye and ear specialty hospitals be paid on the same basis as other hospitals. OBRA 1987 provided that payment for ambulatory surgery in certain hospitals specializing in eye and ear surgery be based on a blend of 75 percent hospital-specific costs and 25 percent of the ASC payment rate. ProPAC analysis indicates that eye and ear specialty hospitals have costs comparable to other acute care hospitals and hospitals in their peer groups.

ProPAC acknowledges that eye and ear specialty hospitals may be vulnerable to financial losses for other reasons. These include greater reliance on Medicare outpatient services revenues and more cases in higher loss payment groups. Nevertheless, the Commission believes that these differences should not be accounted for in the payment system.

First, ProPAC's recommended payment approach would not result in a major change from current policy for these hospitals. Second, because eye and ear specialty hospitals concentrate a high volume of cases in a few procedures, the Commission believes that they may attain economies of scale that other hospitals cannot.

Finally, the Commission recommends that the Secretary examine the need for improved data from freestanding ambulatory surgery centers. These data, which are extremely limited, are the foundation for establishing the ASC payment groups and rates. Currently, there is no systematic method for collecting information on costs in ASCs. The Commission believes that efforts should be undertaken now to ensure more reliable data from these facilities in the future. For additional information on this recommendation, refer to the forthcoming report, *Medicare Payment for Hospital Outpatient Surgery, The Views of the Prospective Payment Assessment Commission*, April 1989.

Recommendation 17: Beneficiary Liability for Hospital Outpatient Surgery

The Secretary should modify the method to determine Part B coinsurance for certain ambulatory surgery services performed in hospital outpatient departments. Currently, beneficiary coinsurance is based on hospital submitted charges. Beneficiary co-insurance should be limited to 20 percent of the payment amount allowed by Medicare. The Medicare program should bear the costs of this change.

Under current law, beneficiary liability for ambulatory surgery differs depending on the site of care. In hospital outpatient departments, coinsurance is equal to 20 percent of the facility charge. In freestanding ambulatory surgery centers, coinsurance is equal to 20 percent of the ASC payment rate.

Prior to OBRA 1986, hospital outpatient departments were reimbursed on the basis of reasonable costs for all services, including ambulatory surgery. These costs were not determined until after the services were performed. Therefore, it was administratively infeasible to base beneficiary coinsurance on actual Medicare payment. As a result, beneficiary coinsurance was based on

submitted charges, which were known when services were performed. Current policy still reimburses hospitals, in part, on a reasonable costs basis. However, the Commission recommends a prospective payment rate for ambulatory surgery in OPDs (see Recommendation 16). Under this policy, Medicare payment will be known at the time services are furnished. Therefore, it is feasible to follow the general Medicare policy that beneficiary coinsurance equals 20 percent of the payment amount and Medicare payment equals 80 percent.

Analysis conducted by the Commission indicates that, for approved ASC procedures, beneficiary coinsurance tends to be greater in an OPD than in a freestanding ASC. Beneficiary coinsurance in the OPD generally exceeds 20 percent of the payment amount allowed by Medicare. In some cases, the beneficiary is paying more than 35 percent of the amount allowed by Medicare. Therefore, Medicare is reimbursing hospitals less than 80 percent of the allowed amount. In ASCs, however, Medicare pays 80 percent and the beneficiary pays 20 percent of the allowed payment amount.

In the Commission's view this policy unfairly penalizes the beneficiary. ProPAC therefore believes legislation should be adopted to reduce the burden on beneficiaries that results from using submitted charges as the basis for determining coinsurance.

The Commission realizes this policy will increase Medicare expenditures. However, the Commission believes that the Medicare program should assume responsibility for 80 percent of the payment amount. Therefore, the costs of this change should be borne by the Medicare program. Payment to hospitals should not be reduced to compensate for the increase in expenditure.

Several other issues regarding beneficiary coinsurance warrant further examination. These issues relate to different Medicare policies for reimbursing Medicare beneficiary bad debt and waiver of coinsurance. The Commission intends to address these issues in upcoming reports, as warranted.

For additional information on this recommendation refer to the forthcoming report, *Medicare Payment for Hospital Outpatient Surgery, The Views of the Prospective Payment Assessment Commission*, April 1989.

Appendices

Appendix A. Background Material and Analyses

Appendix A provides background material and analyses to support some of the recommendations contained in this report. Technical materials on the market basket and the discretionary adjustment factor for PPS and excluded hospitals will be found here. Background analyses of the indirect medical education adjustment and information related to patients with Guillain-Barre syndrome are also presented. In addition, further detail is provided concerning the Commission's review of outlier policy.

In previous years, ProPAC disseminated these and other technical data in a separate volume, published simultaneously with this report. That publication has been discontinued. Further analysis supporting Commission decision making is, however, available through ProPAC's Technical Report Series. A complete list of these reports, which can be obtained by contacting the Commission, appears in Appendix B.

MARKET BASKET FORECASTS AND ERROR CORRECTION

The PPS hospital market basket measures the average change in the price of goods and services purchased by hospitals to provide inpatient care. The projected change in the market basket is an integral component of the Commission's update factor recommendation. The projected fiscal year 1990 increase in the PPS market basket, incorporating the Commission's market basket restructuring recommendation, is 5.7 percent.

The PPS hospital market basket consists of many components, which reflect the full range of goods and services hospitals purchase. Each component has a weight that represents its proportion of total hospital expenses. The change in the price of each component is measured by a price proxy. All but one of the price proxies used in the market basket are based on price indexes published by the Bureau of Labor Statistics (BLS). The forecasts for each market basket price proxy are based on complex statistical models that rely on past and current economic information.

Since 1979, Data Resources, Inc. has been under contract to HCFA to forecast changes in the PPS hospital market basket. HCFA has used these DRI forecasts in developing its PPS update factors. ProPAC has also used these forecasts when making its update factor recommendations.

DRI updates its PPS market basket forecasts every three months. ProPAC uses the most recently available forecast in making its update recommendation. The forecast used in this report was prepared in January 1989.

Forecast Error Correction

Regardless of the method used to forecast inflation in the market basket, errors are bound to occur that might have substantial financial consequences for hospitals or the Federal government. In its 1985 report to the Secretary, the Commission recommended that the update factor should include a correction for substantial errors made in the previous year's market basket forecast. The correction applies only to the external price measures used in the hospital market basket. External price measures are those that reflect trends in the general economy rather than trends specific to the hospital industry.

In the judgment of the Commission, substantial errors are those that equal or exceed 0.25 percentage points.

The Commission believes errors in forecasts for hospital-industry specific (internal) proxies should not be corrected. In this case, behavior of the hospital industry affects the change in the price proxy. If the difference between forecasted and actual increases were automatically adjusted, hospital incentives to limit cost increases in those categories would be reduced. At the same time, if hospitals respond to PPS by slowing wage increases relative to other industries, this should not be built into future update factors.

The market basket forecast used to calculate the update factor for fiscal year 1989 payment rates was 5.4 percent. The current forecast for the fiscal year 1989 market basket is 6.1 percent, or 0.7 percentage points higher. After excluding the effects of errors in forecasting hospital internal wages, the forecast error correction factor is 0.6 percent.

The fiscal year 1989 market basket components that contribute the greatest amount to forecast error are shown in Table A-1. Changes in forecasts for pharmaceuticals and cleaning products contributed substantially to the forecast error, 0.16 and 0.21 percentage points, respectively.

Market Basket Structure

For fiscal year 1990, the Commission recommends that the Secretary change the construction of the PPS market basket. Specifically, the Commission recommends that the share of wages specific to the hospital industry in Medicare's hospital occupational index be increased from 30 percent to 50 percent. The hospital occupational index is the subset of the market basket for wages and salaries. Under the Commission's recommendation, the hospital occupational index would be used to measure changes in total employee compensation rather than wages alone. Wages and benefits are 67 percent of total hospital expenses. As a result of these changes, the proportion of the market basket reflecting hospital-industry specific trends would increase from 16 to 33 percent. This would help the

Table A-1. Market Basket Components Contributing the Greatest Amount to Fiscal Year 1989 Forecast Error

Market Basket Component	Forecast Used for Fiscal Year 1989 Update	Current Forecast for Fiscal Year 1989	Net Error in Market Basket Forecast
Wages and salaries	5.4%	5.7%	0.17%
Benefits	4.6	4.1	-0.05
Malpractice insurance	19.2	26.4	0.12
Pharmaceuticals	5.5	8.5	0.16
Cleaning products	4.5	12.5	0.21
Photographic supplies	2.7	5.5	0.06
Other	NA	NA	-0.10
Total	5.4	6.1	0.66
Internal wages	6.3	6.9	0.10
ProPAC forecast error correction	--	--	0.56

SOURCE: ProPAC estimates using Data Resources, Inc. and U.S. Department of Health and Human Services, Health Care Financing Administration third quarter 1988 and first quarter 1989 market basket forecasts.

total market basket better reflect wage trends unique to the hospital sector.

Under ProPAC's recommendation, the internal wage proxy would be the Employment Cost Index (ECI) compensation series for civilian hospital workers. This is a relatively new wage series developed by the Bureau of Labor Statistics. The internal wage proxy in the market basket currently in use is the Average Hourly Earnings (AHE) for nonsupervisory hospital workers.

Under the Commission's recommendation, the remaining 50 percent of the hospital occupational index would reflect non-hospital wage trends. These would be measured using a combination of nine ECI compensation series reflecting the composition of hospital employees. The modified hospital occupational index is shown in Table A-2. Changes in all hospital employee wages, therefore, would be measured using a 50/50 blend of an internal wage proxy, the ECI for hospital workers, and external wage proxies using the nine ECI compensation series that reflect the types of workers hospitals employ.

The Commission also recommends constructing a new compensation component for the PPS market basket. The compensation component would combine the current wage and salary category with the benefit category. All other market basket components would remain unchanged.

Table A-3 shows the projected increases in the new PPS market basket incorporating the Commission's recommendation. As of January 1989, the market basket forecast under this new construction is 5.7 percent for fiscal year 1990, compared with 5.8 percent under the current market basket construction.

The current 50/50 blend of internal and external wage proxies for professional and technical workers wages is technically imprecise. The AHE includes changes in wages for other types of hospital employees, such as secretaries and service workers. The contribution of wage changes for professional and technical workers used in the market basket is thus understated. To be a true 50/50 blend, either a hospital professional and technical worker wage proxy would need to be developed or the internal wage proxy would have to be applied to the appropriate categories of workers. In the case of the AHE, this would be all nonsupervisory hospital workers. In the case of the ECI for hospitals, this would be all hospital employees.

The Commission believes it is inconsistent to treat benefits differently from wages in the market basket since they are both part of an employee's total compensation. Some hospitals, for example, are allowing employees to trade their benefits for a higher salary. In these cases, total compensation does not increase, but the current construction of the market basket treats this as a wage increase.

Table A-2. Relative Importance and Projected Increase for Commission's Recommended Hospital Occupational Index*

Employment Category	Relative Importance 1989 ⁺	Projected Increase 1990	Wage Proxy
All hospital workers	50.0	6.1%	Employment Cost Index, Compensation Series (ECI-C), for hospital workers
Professionals and technicians	29.6	5.9	ECI-C for professionals and technicians
Managers	3.6	6.2	ECI-C for managers and administrators
Sales	0.2	4.5	ECI-C for sales workers
Clerical	6.1	5.3	ECI-C for clerical workers
Craft and kindred	1.1	4.5	ECI-C for craft and kindred workers
Operatives except transport	0.4	5.6	ECI-C for operatives except transport
Transport operatives	0.1	5.1	ECI-C for transport operatives
Nonfarm laborers	0.1	5.2	ECI-C for nonfarm workers
Service workers	8.8	5.3	ECI-C for service workers
Total	100.0	5.9	

* The Medicare Hospital Occupational Index is used to measure the rate of increase in the employee compensation component of the Medicare market basket for hospitals.

+ The relative importance for each cost category represents the proportion of a hospital's expenses incurred for these inputs in a 1982 base period updated by subsequent price changes. The relative importance changes over time in accordance with price changes in each cost category.

SOURCE: Data Resources, Inc. first quarter 1989 forecasts.

ProPAC therefore recommends combining the wage and benefit categories into a single compensation category. The ECI compensation series should be used to measure changes in this new category. The ECI effectively covers all employee compensation expenses: wages, benefits, and bonuses. The wage and benefit coverage is more complete than the wage and benefit price proxies currently used in the market basket. The new category should be assigned a new weight reflecting this expanded coverage of hospital inputs.

Market Basket for Excluded Hospitals

HCFA computes a separate market basket for all PPS-excluded facilities combined. The major difference between the PPS market basket and the market basket for excluded facilities is the wages and salaries component. This component comprises 64 percent of the market basket for excluded facilities compared with 57 percent of the PPS market

basket. As a result, changes in wages affect the PPS-excluded market basket slightly more than the PPS market basket.

The market basket for excluded facilities would also be affected by the Commission's market basket structure recommendation. Excluded facilities would use the hospital occupational index shown in Table A-2. This hospital occupational index would be applied to a new compensation component in the excluded market basket. The compensation component would combine the current wage and salary category with the benefit category. Since excluded facilities are more labor intensive than PPS and children's hospitals, the proportion of the total market basket reflecting compensation would continue to be higher for excluded hospitals. Thus, the Commission's recommended change in market basket composition would affect the updates for excluded facilities at least as much as the updates for PPS hospitals.

Table A-3. Components of the Fiscal Year 1990 PPS Market Basket Forecast Used by the Commission^a

Category of Costs	Relative Importance 1989 ^b	Projected Increase 1990	Price Proxy
Wages, salaries, and benefits	66.66	5.9%	Medicare Hospital Occupational Index ^c
Professional fees	0.79	6.1	
Medical fees	0.00	NA	
Other fees	0.79	6.1	ECI professional and technical workers
Capital	0.00	NA	
Utilities	1.95	5.3	
Fuel oil, coal and other fuel	0.49	8.8	Producer Price Index (PPI) middle distillates
Electricity	0.95	3.0	PPI industrial electric power
Natural gas	0.28	4.7	PPI gas fuels
Motor gasoline	0.20	8.8	PPI gasoline
Water and sewage	0.04	7.6	CPI water and sewage maintenance
Malpractice insurance	1.90	19.4	AHA Annual Survey Malpractice Insurance
All other products	20.27	5.3	
Pharmaceuticals	5.54	8.2	PPI ethical (prescription) preparations
Food	3.27	4.8	
Contract services	2.00	4.4	CPI food purchased away from home
Direct purchase	1.27	5.5	PPI processed food
Chemicals and cleaning products	2.69	4.4	PPI industrial chemical products
Surgical and medical instruments	1.97	2.9	PPI medical and surgical instruments
Photographic supplies	1.96	2.6	PPI photographic supplies
Rubber and plastics	1.83	5.0	PPI rubber and plastic products
Paper products	1.16	5.9	PPI composite paper price index
Apparel	0.85	3.1	PPI textile house furnishings
Minor machinery and equipment	0.37	4.4	PPI machinery and equipment
Miscellaneous products	0.63	4.8	PPI all finished goods
All other services	8.44	4.9	
Business services	2.94	4.8	AHE business services
Computer and data processing	1.56	6.8	AHE computer services
Transportation and shipping	0.93	5.4	CPI transportation
Telephone	0.71	3.8	CPI telephone services
Blood services	0.47	4.2	PPI blood and related biologicals
Postage	0.29	0.0	CPI postage
All other services: labor intensive	0.94	4.9	ECI all service workers
All Other services: nonlabor intensive	0.61	4.6	CPI all items
Total	100.00	5.7	

^a Excludes capital, medical education, and medical professional fees.^b The relative importance for each cost category represents the proportion of a hospital's expenses incurred for these inputs in a 1982 base period^c updated by subsequent price changes. The relative importance changes over time in accordance with price changes in each cost category.^c This is the hospital occupational index recommended by ProPAC. It uses a combination of wage indexes based on occupational categories: nine different Employment Cost Indexes external to the hospital industry and one internal to the hospital industry.

SOURCE: Data Resources, Inc. first quarter 1989 forecasts.

THE DISCRETIONARY ADJUSTMENT FACTOR FOR PPS HOSPITALS AND PPS-EXCLUDED HOSPITALS AND UNITS

The development of the discretionary adjustment factor (DAF) recommendations for PPS hospitals and for PPS-excluded hospitals and units is based on the Commission's recognition of potential changes in the average cost of a discharge and the appropriate effect of these changes on Medicare payments to hospitals. To quantify the DAF, the Commission examined two major factors: scientific and technological advancement, and hospital productivity improvement.

In previous years, the Commission also considered case-mix change and site-of-care substitution as components of the DAF for PPS hospitals. This year, case-mix change has been removed from the DAF and is a separate component of the PPS update factor.

The Commission also decided that there is no longer an empirical basis for recommending an adjustment for site-of-care substitution in the DAF for PPS hospitals. This decision was based primarily on the stabilization of hospital admission rates and length of stay. The Commission believes that hospital opportunities for moving services out of an inpatient stay into other settings have diminished to the point that an adjustment for site-of-care substitution is no longer necessary.

Both scientific and technological advancement and hospital productivity improvement are future-oriented goals based in part on analyses of past behavior. ProPAC reviewed analyses that provide ranges of estimates of cost changes associated with productivity and scientific and technological advancement. The Commission concluded that for PPS hospitals in fiscal year 1990, allowances for scientific and technological advancement and productivity improvement should offset one another, resulting in a discretionary adjustment factor of zero. The Commission reached the same decision for PPS-excluded hospitals and units.

In the following sections, the allowances for scientific and technological advancement and hospital productivity are discussed in greater detail.

Scientific and Technological Advancement in PPS Hospitals

As part of the DAF, ProPAC has for several years analyzed the effects of scientific and technological advances on the cost of providing quality hospital services. The Commission's recommended allowance is a policy target for the next fiscal year, rather than an adjustment for past behavior in the hospital industry. It represents the Commission's judgment about the appropriate level of financing for technological advancement in the fiscal year 1990 payment rates to PPS hospitals. The allowance is based on estimates of total cost increases for PPS hospitals due to cost-increasing, quality-enhancing technologies.

In determining the policy target for fiscal year 1990, the Commission examined important recent changes in significant scientific and technological advances. Thirteen cost-increasing, quality-enhancing technologies were identified. The total incremental impact of these technologies on inpatient operating costs is approximately \$242 million for fiscal year 1990.

This estimate includes costs associated with both new and existing cases. New cases are those that would not have been treated as hospital inpatients prior to adoption of the new technology. Existing cases are those that would have been treated as inpatients, but less intensively. Only existing cases are considered in the technology allowance of the DAF, however. The inclusion of all costs associated with new cases is unnecessary here because new cases automatically result in additional DRG payments. Additional costs associated with increases in case complexity are accounted for in the case-mix change component of the update factor. 56 percent (\$135 million) of the total estimate is associated with new cases.

Adjusting for existing cases is necessary because they have increased costs due to the application of the new technologies. Of the \$242 million estimate, 44 percent (\$107 million) is associated with existing cases. The Commission estimates that the standardized amounts would have to increase by approximately 0.3 percent to cover the costs of these advances.

In 1988, the Commission identified 29 cost-increasing technologies, adding about \$302 million to Medicare costs for fiscal year 1989. More than 54 percent of the estimate was associated with new cases. Forty-six percent (\$118 million) was associated with existing cases, which represented a 0.3 percent increase to the standardized amounts. However, the Commission recommended a 0.5 percent increase for fiscal year 1989 to include technologies and changes in practice patterns not considered in the study.

A more detailed explanation of how the Commission derived the fiscal year 1990 estimates is presented below.

Study Methodology—For the past three years, Project HOPE has performed a study of scientific and technological advancement for the Commission. This year, the methodology was limited to an examination of major changes in diffusion costs of

technology advancement identified in past reports. New technologies that were likely to have a significant effect on inpatient operating costs were also added.

To be included on the list of cost-increasing, quality-enhancing technologies, four criteria had to be met. First, the technology should significantly effect incremental changes in Medicare inpatient operating costs. Second, it should be at least 5 percent diffused. Third, it should be no more than 75 percent diffused. Finally, it should be considered safe and effective.

The primary sources of information for this analysis were medical and health policy literature, telephone interviews with medical and industry experts, and consultations with technology experts.

The cost estimates for the cost-increasing technologies are summarized in Table A-4. The estimates

Table A-4. Estimated Fiscal Year 1990 Medicare Cost Impact of New, Cost-Increasing Technologies in PPS Hospitals

Technology	Amount (In Millions)		
	Low	High	Best
Cochlear implants	\$ 3.2	\$ 3.2	\$ 3.2
Electrophysiologic studies	37.5	42.0	39.8
End tidal CO ₂ monitors	2.5	3.8	2.5
Implantable defibrillator	23.9	35.8	29.9
Implantable infusion pumps	1.0	1.6	1.3
Low osmolar and nonionic contrast media	3.8	5.0	4.4
Magnetic resonance imaging	2.5	4.8	4.8
Monoclonal antibody imaging agents	3.8	13.2	8.5
Pacemakers - dual chamber			
Pacemakers - single chamber, rate-responsive	20.3	20.3	20.3
Percutaneous transluminal coronary angioplasty	21.2	56.4	38.8
Positron emission tomography	7.5	10.5	9.0
Pulse oximetry	8.8	10.0	10.0
Thrombolytic agents	52.2	87.0	69.6
Total	188.2	293.6	242.1

SOURCE: Project HOPE under contract to ProPAC.

for thrombolytic agents and percutaneous transluminal coronary angioplasty once again are major items in the overall dollar estimate. A new technology added to the list for fiscal year 1990, electrophysiological studies, also proved to be of major importance.

The major difference in the total dollar estimate for fiscal year 1990, compared with the estimate for fiscal year 1989, is the absence of the one-time adjustment for AIDS infection control allowed in fiscal year 1989. That estimate did not reflect the direct cost of treating Medicare AIDS patients. Rather, it reflected the additional costs associated with providing protection for Medicare patients from infection with the AIDS virus.

Five cost-decreasing technologies have been identified, as shown in Table A-5. These technologies are expected to generate an estimated \$95 million in savings for fiscal year 1990. The comparable estimate of savings from cost-decreasing technologies for fiscal year 1989 was \$34 million.

Table A-5. Estimated Fiscal Year 1990 Medicare Cost Impact of New, Cost-Decreasing Technologies in PPS Hospitals

Cost-Decreasing Technology*	Amount (In Millions)		
	Low	High	Best
Endoscopic lasers	\$ -32.2	\$ -46.5	\$ -39.4
Extracorporeal shockwave lithotripsy	-9.3	-9.3	-9.3
Gallstone lithotripsy	-28.8	-28.8	-28.8
Peripheral vascular angioplasty	-8.0	-13.7	-6.9
Valvuloplasty	-10.0	-11.0	-10.5
Total	-88.4	-109.3	-94.9

* These cost-decreasing technologies have the potential to save money relative to the technologies they are replacing. However, it is recognized that there is a great deal of uncertainty surrounding these estimates and that, as in the past, potentially cost-saving technologies may end up increasing costs in the aggregate due to increased utilization.

SOURCE: Project HOPE under contract to ProPAC.

Methodology Limitations—The estimates described above are subject to several limitations. First, they do not capture the cost impact of more established technologies that are still diffusing into facilities, or those that have different applications than originally intended. Second, the estimates

reflect only technologies adopted systemwide. Third, the cost estimates are affected by uncertainty regarding future adoption and use of specific technologies for Medicare patients. Finally, the list of technologies includes only those technologies that are projected to have a major effect on operating costs. Many "small ticket" technological advances are therefore omitted. In addition, the estimates are developed using imprecise estimation techniques.

Despite these limitations, the Commission has found the approach useful for estimating the cost of technological advancement. Since the methodology tends to underestimate these costs, the Commission has consistently added to the study estimates to arrive at the DAF allowance.

Scientific and Technological Advancement in PPS-Excluded Hospitals and Units

The effect of scientific and technological advances on the cost of providing quality hospital services in PPS-excluded facilities has been analyzed by the Commission as part of the DAF allowance for the past several years. This part of the DAF allowance is a future-oriented policy target. It reflects the Commission's judgment of the financial requirements for PPS-excluded facilities to implement cost-increasing, quality-enhancing technologies used to treat Medicare patients.

To determine the scientific and technological advancement allowance for fiscal year 1990 for excluded facilities, the Commission applied the same approach it used for PPS hospitals. Cost ranges were estimated for new technologies that significantly affect Medicare inpatient operating costs. The Commission examined a set of important new technologies and scientific developments since the fiscal year 1989 study. As is the case with the PPS estimates, it is impossible to enumerate all the technologies that meet the definition of advancement and to identify their costs precisely.

For fiscal year 1990, five technologies were identified as having a significant effect on Medicare inpatient operating costs. The estimate of the increase in costs due to the new technologies averaged 0.2 percent of payments to PPS-excluded facilities. This estimate is somewhat lower than the estimate for fiscal year 1989 for two reasons. First, the fiscal year 1990 estimate does not include the

one-time adjustment for AIDS infection control. Second, geriatric treatment programs, which comprised over 75 percent of last year's estimate for psychiatric facilities, are now considered cost-decreasing rather than cost-increasing. Both resource intensity and length of stay for these programs were overestimated for fiscal year 1989.

Developing the Estimates—Project HOPE performed the study of technological advances for psychiatric and rehabilitation facilities by employing the same basic approach as that used for PPS hospitals. A different approach was used for long-term hospitals because of the diversity of facilities in this category. For long-term facilities, a weighted average of the per-case cost estimates for PPS, psychiatric, and rehabilitation facilities was used.

Analysis of industry and technology literature, telephone surveys, and consultations with clinical experts led to the development of the list and cost estimates of the technologies. As Table A-6 shows, two psychiatric and three rehabilitation technologies were identified as significantly affecting Medicare inpatient operating costs.

Table A-6. Estimated Fiscal Year 1990 Medicare Cost Impact of New, Cost-Increasing Technologies in Psychiatric and Rehabilitation Hospitals and Distinct-Part Units

New Technology	Amount (in Thousands)
Psychiatric	
Magnetic resonance imaging	\$1,600-2,600
Clozapine	1,200
Rehabilitation	
Customized plastic orthotics	\$ 22-240
Customized positioning and seating	11-58
Augmentative communication devices	*

* Data were insufficient to estimate this amount.

SOURCE: Project HOPE under contract to ProPAC.

The analysis of technological advances for PPS-excluded facilities is subject to the same limitations described in the similar study for PPS hospitals.

Productivity in PPS Hospitals

The hospital productivity allowance for PPS hospitals is a future-oriented policy target that

incorporates the savings associated with productivity goals. It accounts for the potential productivity improvements resulting from PPS incentives to reduce the number and cost of resources used to treat patients. Past productivity trends serve as a guidepost in the Commission's determination of productivity targets for the future.

Productivity Concepts and Definitions—The Commission measures productivity as the ratio of outputs per unit of resource input. Increased productivity implies that the hospital is either producing more or higher-quality products with the same resources, or the same products with fewer resources. Decreased productivity implies that the hospital is either producing fewer or lower-quality products with the same resources, or the same products with more resources.

The Commission is concerned about identifying reasonable indicators of changes in the hospital production process that affect hospital costs. However, examination of these changes is confounded by problems in measuring the hospital product. Ideally, productivity should be based on precise measurement of the changes in the hospital product that incorporate health outcome, service quantity and quality, and case mix. Because that is not possible, the Commission uses past productivity measures only as a starting point for discussion of future policy goals in this area.

In its analysis of hospital productivity, the Commission has defined the discharge as the final hospital product. Discharge productivity is composed of intensity and intermediate productivity. Intensity is measured as the units of service provided per inpatient stay. Intermediate productivity is measured as the resources used to produce an individual service. For example, the time spent on an X-ray procedure or a lab test is considered intermediate productivity, while the quantity of services provided during hospitalization for chemotherapy is considered intensity.

Units of service vary by the type of service and availability of data. For example, a unit of service on the medical/surgical unit is generally expressed as a patient day, while in radiology it is expressed as an X-ray procedure.

Study Methodology—As in the past, the Commission's study of hospital productivity trends was performed by Health Economics Research, Inc. (HER). HER used two data sources: American Hospital Association (AHA) Monitrend data for 1979 through 1988, and AHA Annual Survey data for 1979 through 1987. The Monitrend data analysis measured labor productivity and intensity in independent cost centers, aggregated to arrive at overall hospital productivity measures. HER used the AHA Annual Survey data to measure labor productivity using admissions as a measure of output. These data were used primarily to validate the Monitrend analysis and to measure productivity for PPS-excluded hospitals.

For the fiscal year 1990 update factor, HER's study focused primarily on developing estimates of the changes in labor productivity in the past year. Using AHA Monitrend data, HER developed measures of productivity based on hours per unit of service (intermediate productivity) and hours per discharge (discharge productivity). Decreases in productivity are expressed as increases in hours per unit of service or increases in hours per discharge.

The Commission was particularly concerned that the measures of productivity should be adjusted for product changes associated with increasing patient complexity. To address this problem, the measures of discharge productivity and intensity were adjusted for real case-mix change. Estimates of cost increases associated with real case-mix change were provided by ProPAC.

As mentioned above, there are significant limitations to these analyses. First, defining the hospital product is difficult and ambiguous. Second, attempting to measure the product once defined is also imprecise and incomplete because the hospital product changes. Nevertheless, the Commission takes the limitations into account and then uses the analyses to help assess industry productivity change.

Study Results—Productivity trends from 1981 through 1988 are shown in Table A-7 and Figure A-1. Hours per discharge and service units per discharge are adjusted for real case-mix change. The data show a small increase in hours spent per discharge since 1987, which indicates a decrease in

discharge productivity. Hours spent per service unit increased slightly since 1987, which indicates a decrease in intermediate productivity. The data also show a slight decrease in intensity since 1987, which is seen in the small decrease in service units per discharge.

Even though actual labor productivity has not improved, the annual rate of increase in hours spent per discharge and hours spent per service unit has decreased since the inception of PPS. The trends seen in the table and figure need to be interpreted with caution since the data remain unadjusted for product changes related to factors other than real case-mix change and increased outpatient activity.

Productivity Potential in PPS-Excluded Facilities

The productivity allowance for PPS-excluded facilities is a future-oriented policy target that reflects the savings associated with productivity improvement goals. Past productivity trends serve as a guidepost in the Commission's determination of future productivity targets.

Health Economics Research, Inc. performed the study of PPS-excluded facility productivity trends. Productivity trends from 1981 to 1987 were examined using AHA Annual Survey data. The data included all facilities classified as psychiatric, rehabilitation, long-term general, and chronic disease hospitals.

Labor productivity trends were measured by comparing the growth in admissions, adjusted for outpatient activity, with the growth in labor inputs. Labor inputs were measured by the number of full-time equivalent employees recorded on the survey, adjusted for changes in employee skill mix.

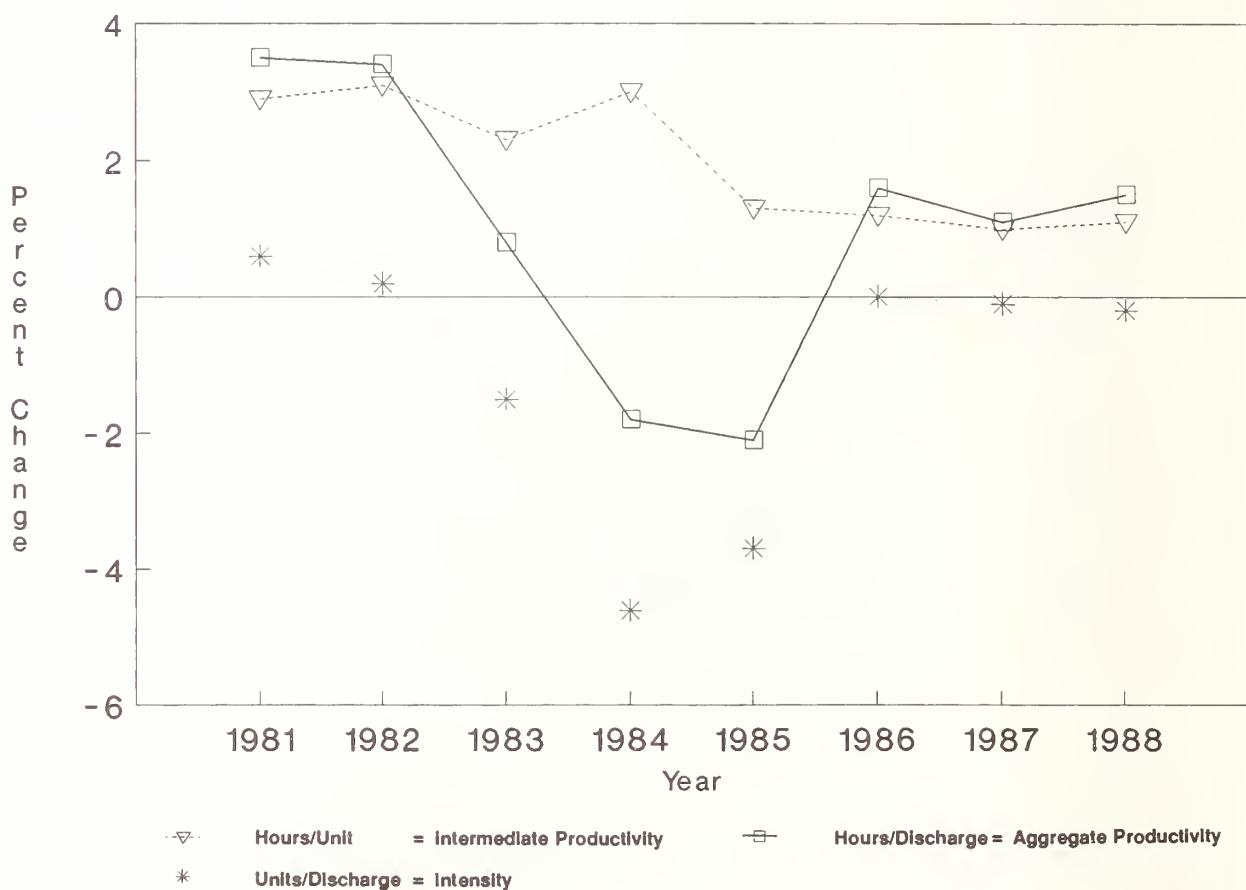
Results of the study indicate that labor hours per admission have not changed for PPS-excluded facilities as a group. For psychiatric facilities, labor hours per admission show a slight increase from 1986 to 1987. For rehabilitation facilities, labor hours per admission show a slight decrease. Data for long-term facilities are not consistent enough to obtain a reliable estimate. Overall, the change in labor productivity from 1986 to 1987 appears negligible.

Table A-7. Annual Percent Change in Inputs Per Unit of Output, 1981-1988

Year	Real Case-Mix Change	Discharge Productivity ^a		Hours Per Unit	Intermediate Productivity ^a		Intensity ^a
		Hours Per Discharge ^b	Hours Per Discharge, Real Case-Mix Adjusted ^{b,c}		Units Per Discharge ^b	Units Per Discharge, Real Case-Mix Adjusted ^{b,c}	
1981	1.0	4.5	3.5	2.9	1.6	0.6	
1982	1.0	4.4	3.4	3.1	1.2	0.2	
1983	1.0	1.8	0.8	2.3	-0.5	-1.5	
1984	2.2	0.4	-1.8	3.0	-2.4	-4.6	
1985	2.4	0.3	-2.1	1.3	-1.3	-3.7	
1986	2.1	3.7	1.6	1.2	2.1	0.0	
1987	1.8	2.9	1.1	1.0	1.7	-0.1	
1988	1.9	3.4	1.5	1.1	1.7	-0.2	

^a Negative numbers indicate gains in productivity and positive numbers indicate losses in productivity.^b Adjusted for outpatient visits.^c Adjusted for real case-mix change of Medicare patients.

SOURCE: American Hospital Association Monitrend data analyzed by Health Economics Research, Inc. under ProPAC contract. Real case-mix change estimates by ProPAC.

Figure A-1. Annual Percent Change in Inputs per Unit of Output, Real Case Mix Adjusted: United States Hospitals, 1981-1988

SOURCE: AHA Monitrend data analyzed by Health Economics Research, Inc. under ProPAC contract. Real case-mix change estimates by ProPAC.

CASE-MIX CHANGE

The Commission believes that hospitals should be compensated for increases in real case-mix change but not for changes in medical record documentation and coding practices, or upcoding. Real case-mix change is defined as changes in patient resource requirements caused by changes in patients or their treatments. Payment increases associated with a rise in the DRG case-mix index may result from both real case-mix change and upcoding. ProPAC recommends, therefore, that payments be allowed to increase only for that portion of CMI change related to real case-mix change plus additional patient care requirements not measured in the CMI.

The Commission has been working to develop better methods to measure the components of case-mix change to adjust the update factor appropriately. This has been difficult because the forces affecting case-mix change are complex, and the data for examining it are not readily available. This year ProPAC has significantly improved its case-mix measurement capabilities. The Commission's final recommendation, however, must still rely heavily on its judgment regarding case-mix change.

The studies and methods the Commission used to estimate each case-mix change component and to arrive at its final recommendation are described below.

Case-Mix Index Change

The 3.0 percent projection for CMI change in 1989 is based on preliminary HCFA data on CMI change in 1988. Comparing the 1988 CMI (calculated with data through September 1988) with the 1987 CMI (calculated with comparable data available through September 1987) yields an increase of 3.6 percent. The Commission believes this large CMI increase was at least partly due to major changes in the DRG Grouper introduced in 1988. Age was eliminated as a classification criterion for the DRGs, thus providing hospitals with further incentives to completely code all patient complications and comorbidities. It was assumed, therefore, that much of the 1988 increase above the previous trend was due to upcoding.

ProPAC believes that case-mix index changes due primarily to upcoding are large in the first year

they occur and fall off quickly afterward. This conclusion is based on the pattern observed for hospitals under PPS since its beginning and on the experience of New York and Massachusetts hospitals, which came under PPS later. CMI change for 1989, therefore, is expected to be considerably below 3.6 percent. On the basis of the CMI change trend before 1988, ProPAC would have expected CMI change to decline gradually to an almost steady-state level, absent any major changes in upcoding. The projection of 3.0 percent change in 1989 is a compromise between the actual experience in 1988 and the trend in declining CMIs that was evident before then.

Real Across-DRG CMI Change

The Commission believes that, as the total amount of case-mix index change declines, the proportion that reflects real changes in patient care requirements increases. The current estimates build on this logic and preliminary empirical evidence provided by a major study of real case-mix change conducted by the RAND Corporation for HCFA and ProPAC. The final report will be released in June 1989.

The study compared original coded information from medical records with recoded data from the same records, apportioning CMI change into real and upcoding components. The contractor used medical record data from fiscal years 1986 and 1987. A sample of records proportional to the number of Medicare cases in each state was selected. These data were supplemented with CMI data from the Medicare patient billing file to estimate the CMI level at which Medicare paid for these cases over the same period.

The medical records were collected by the SuperPRO. The SuperPRO is under contract with HCFA to monitor and evaluate PRO performance. As part of its activities, the SuperPRO reabstracts a sample of medical records that were reviewed by the PROs. For this study, the SuperPRO coded the medical records again, using consistent coding rules. Because the SuperPRO has no incentive to upcode and its coders are well trained, DRG assignments from the recoded data are highly reliable.

The contractor estimated the amount of upcoding by comparing DRG assignments made from the

hospital's coded data with DRG assignments from the SuperPRO's data recoded for this study. The real CMI change over the period was estimated by comparing the 1986 and 1987 reabstracted data.

The contractor also developed estimates of the effects of three causes of upcoding. The first, changes in hospital coding behavior, was estimated by comparing the hospital's coding with the SuperPRO's coding. The second, changes in DRG assignments caused by Grouper changes, was estimated by comparing DRG assignments for the same data using different versions of the Grouper. The third source of upcoding, changes in coding standards or improvements in SuperPRO coding, was estimated by comparing DRG assignments from both times the SuperPRO coded the data.

Preliminary results indicate that approximately three-quarters of the CMI change observed between 1986 and 1987 was real. The CMI calculated with the SuperPRO recoded data was very similar to the CMI calculated with the original hospital data. Compared with the original hospital coding, the SuperPRO assigned lower-weighted DRGs in approximately the same proportion of cases as they assigned higher-weighted DRGs. Only a small portion of the CMI change from 1986 to 1987 could be attributed to Grouper changes. A slightly larger portion appears to be due to changes in coding standards or SuperPRO coding, but this result is based on preliminary findings.

This estimate should be considered an upper boundary on the amount of real case-mix change, however, because of two limitations of the study. First, the 1987 data used in the study are incomplete. Data that come in later during the year generally represent higher-weighted DRGs and, therefore, raise the CMI. Because higher CMI increases are associated with lower proportions of real change, preliminary results probably overstate the proportion of real change.

Second, this study does not measure the effect of improved medical record documentation. Evidence indicates that physicians and other health care practitioners now are providing more information on the medical record. Although this would tend to raise CMIs, it does not represent real CMI change.

Study results indicate that approximately three-quarters of the 2.1 percent CMI change calculated in 1987 was real. The Commission believes this proportion is an upper boundary on real CMI change for the reasons discussed earlier. The 1989 CMI change is estimated to be 3.0 percent. Taking into account the higher CMI change and the effects of changes in medical record documentation, the Commission estimated that 50 percent of the 1989 CMI change was real.

Within-DRG Case-Complexity Change

The Commission's recommendation on within-DRG case-complexity change previously was based on data from the Commission on Professional and Hospital Activities. These data showed that, holding DRG constant, a higher number of unique body systems are involved in the average case since the implementation of PPS, indicating an increase in case complexity. Further, the decline in admissions during the early years of PPS suggests that less complex cases were being treated out of the hospital. Finally, the Commission believes that when real across-DRG case-mix index change is high, the within-DRG change is also high.

This year the Commission used a new method to estimate within-DRG case-complexity change based on a recent study by SysteMetrics/ McGraw-Hill, Inc. The final report from this study will be released in April 1989 as part of ProPAC's Technical Report Series. The contractor developed a data base of a 10 percent stratified random sample of PPS hospitals. The resulting 567 hospitals were representative of all PPS hospitals. For this set of hospitals, all discharge records were obtained from fiscal years 1984 through 1987. Two alternative patient classification systems, Disease Staging and Patient Management Categories (PMCs), were used to measure changes in patient complexity.

Disease Staging, a clinically based measure of severity, uses objective medical criteria to assess severity on the basis of the etiology and stage of disease progression. Staging defines discrete points in the course of individual diseases. These points reflect severity in terms of risk of death or residual impairment and are clinically significant for prognosis and choice of therapy. Every diagnostic code on a patient's medical record is used to determine a disease category and stage.

PMCs were designed to represent clinically distinct patient types, each requiring a different diagnostic and treatment strategy. Within each of the 51 clinically defined disease or disorder modules, physicians identified clinically specific patient types. Typical diagnoses and treatments were defined for each patient type. PMC classification is based on up to five diagnoses, three procedures, age, and sex.

After assigning cases to DRGs, cases were classified by both Disease Staging and PMCs. This was to allow measurement of increases in complexity, by both classification systems, while holding DRG constant. Using this methodology, the contractor developed two trend estimates of case-complexity change. Using Disease Staging, increases in case-complexity declined from 4.1 percent in 1985 to 1.9 percent in 1986, and to 1.0 percent in 1987. Using PMCs, increases in case-complexity declined from 2.4 percent in 1985 to 1.2 percent in 1986, and to 0.8 percent in 1987.

There are two possible reasons for case-complexity increases. First, medical records may reflect a more complex principal diagnosis or condition for the average patient. Second, the average patient may have more complications or comorbidities. Both of these apparent increases in complexity also can be affected by more thorough or accurate medical record coding practices. Thus, the estimates of within-DRG case-complexity change provided above tend to be overstated because, like the CMI, they are subject to upcoding.

The contractor investigated the possible effects of upcoding on these estimates. The increase in case-complexity occurred primarily because more comorbidities were coded, not because the principal conditions listed were more severe. To measure their impact, the contractor artificially reduced the number of comorbidities. Because of the dominant effect of comorbidities on the complexity estimates, reducing the number of comorbidities by a given percentage resulted in an almost equal reduction in the complexity estimate. Therefore, the adjusted complexity measure depends almost entirely on the estimated proportion of increased comorbidities due to upcoding. Based on this information, the Commission judged that the lower end of the range, 0.8 percent, was the appropriate estimate of within-DRG case-complexity change.

Future Analyses

Recent CMI data indicate that case-mix change is still an important source of PPS hospital payment increases. The Commission will continue studying case-mix change and refining methods for estimating its components. Further, PropAC has urged HCFA to refine the medical record reabstraction method to apportion CMI change into real and upcoding components. In addition to the studies described above, the Commission will release its most current compilation of case-mix data in its June 1989 report, *Medicare Prospective Payment and the American Health Care System*.

INDIRECT MEDICAL EDUCATION ADJUSTMENT

In its 1988 report to the Secretary of Health and Human Services, the Commission recommended that the indirect costs of medical education should be accommodated in the prospective payment system structure through an empirically derived payment adjustment. The Commission stressed that since PPS has moved to fully national rates, sources of hospital cost variation were recognized to a lesser degree in the basic payment to hospitals. Equity of payments to hospitals has therefore become increasingly dependent on the use of payment adjustments that are founded in sound data analysis.

The Commission further recommended that the payment adjustment be reviewed annually using the most recently available cost data. As the cost patterns of hospitals continue to change, and other features of the payment system are revised, reestimating the relationship between teaching effort and Medicare costs on an annual basis becomes more important. The Commission requested that the Secretary support further research efforts to improve measurement of the sources of hospital cost variation.

Finally, the Commission urged that special attention be given to hospitals that face the largest cost burden associated with having both a medical education program and a significant share of low-income patients.

In keeping with its 1988 recommendation, the Commission undertook analysis to determine the effect of teaching effort on Medicare costs. There were three phases to the analysis: (1) estimating the relationship between teaching effort and Medicare costs using the most recent Medicare Cost Report data available, (2) examining the overlap between the indirect medical education and the disproportionate share payment adjustments, and (3) evaluating the financial impact of revising the teaching adjustment based on the results of the empirical analysis.

Background

The indirect medical education adjustment predates the implementation of PPS. Following 1972

legislation, limits were set on Medicare reimbursement levels for routine per diem hospital costs under Section 223 of the Social Security Act Amendments. These cost ceilings were adjusted for hospital size, urban/rural location, and area wage rates.

In 1980, the Section 223 cost ceilings were modified by adding a payment adjustment for the indirect costs associated with medical education. This adjustment recognized the higher patient care costs of hospitals with graduate medical education programs. Among the factors contributing to these higher costs are the greater use of ancillary services, a more severely ill patient mix, location in inner cities, and a more costly mix of staffing and facilities.

As part of its original plan for implementing PPS, the Administration proposed that teaching hospitals would receive a per-case payment increase of 5.79 percent for every 0.1 in their intern/resident per bed ratio (IRB). This adjustment was derived from a standard regression model using 1981 Medicare Cost Report data. The model included the following factors to explain variation in Medicare cost per case: DRG case-mix index, area wages, bed size, MSA size, and IRB as the measure of teaching effort.

CBO analysis revealed that under this original PPS proposal, 71 percent of teaching hospitals would have payment reductions under national rates. In response, Congress adopted a medical education adjustment of 11.59 percent for fiscal years 1984 and 1985, doubling the original 5.79 percent adjustment. This adjustment was applied to the Federal portion of payments to teaching hospitals, which was 25 percent for fiscal year 1984 and 50 percent for fiscal year 1985. The adjustment was funded through a reduction in the standardized amounts paid to all hospitals. Table A-8 provides a history of the indirect medical education adjustment under PPS.

In 1986, CBO obtained an indirect medical education estimate of 8.7 percent using an alternative analytic approach, referred to as the "payment regression model," and the same 1981 Medicare Cost Report data. This estimate was significantly higher than the 5.79 percent estimate obtained

Table A-8. Indirect Medical Education Adjustment Under PPS

Fiscal Year	Adjustment	Federal Portion ^a
1984	11.59% ^b	25%
1985	11.59	50
1986	11.59 8.1 ^c	50 55
1987	8.1	75
1988	8.1	100
1989	7.7 ^d	100

^a Share of PPS payments per case to which the adjustment was applied. Changes in Federal portions were phased in by hospital accounting year.

^b The 11.59% adjustment was used in the following formula to calculate the percentage add-on to payments for teaching hospitals: $IRB \times 1.159$.

^c The 8.1% adjustment was implemented in May 1986. It was used in a new formula to reflect the curvilinear relationship between teaching effort and Medicare cost per case: $2.0[(1+IRB)^{.405}-1]$.

^d The 7.7% adjustment uses the same basic formula as the 8.1% adjustment although the multiplier was changed to lower the adjustment: $1.89[(1+IRB)^{.405}-1]$.

SOURCE: U.S. Congress, House of Representatives, Committee on Ways and Means, *Background Material and Data on Programs Within the Jurisdiction of the Committee on Ways and Means* (Washington, DC: U.S. Government Printing Office, March 24, 1988).

from the standard regression model using the same 1981 Medicare Cost Report data.

The payment regression model used to derive the 8.7 percent estimate differs from the standard regression model used to produce the 5.79 percent estimate in several important ways. First, the payment model includes only those factors affecting costs that are explicitly recognized in the payment system. The factors include DRG case-mix index, area wages, MSA size, disproportionate share status, outlier payments, and IRB. All factors, except for IRB, are then restricted in the analysis to reflect their payment system values.

The resulting estimate for the IRB coefficient represents the contribution of teaching effort to the "unpaid-for" variation in Medicare cost per case. Consequently, the payment model allows the IRB estimate to become a proxy for other factors (such as number of beds) that are correlated with teaching effort but are not part of the payment system and therefore are excluded from the model. The payment adjustment to teaching hospitals, therefore, includes the effects of a large number of beds on Medicare costs per case. However, nonteaching hospitals with a large number of beds do not receive any payment adjustment for the additional costs they may experience due to this factor.

Despite its drawbacks, the payment model does provide a prudent method to estimate the relationship between teaching effort and Medicare cost per case. The inability to identify and accurately measure all factors affecting hospital costs suggests that adjustments to the payment system for legitimate cost variation should be made in a less restrictive fashion than a standard regression model implies. As the ability to measure hospital cost variation improves, the structure of payment adjustments will likely also improve.

During fiscal year 1986 and continuing through fiscal year 1988, Congress enacted an indirect medical education adjustment of 8.1 percent. In addition to the lower level, a new formula was used to calculate the adjustment to payments, reflecting the curvilinear relationship between teaching effort and Medicare cost per case. The difference in payments under the 8.7 estimate and the 8.1 adjustment was used to finance part of the disproportionate share adjustment. The Federal portion of the base payment to which the adjustment was applied increased from 50 percent in fiscal year 1986 to 100 percent in fiscal year 1988. For fiscal year 1989, the indirect medical education adjustment was lowered again to 7.7 percent.

Results of Analysis

The results of the analysis conducted by the Commission follow.

Indirect Medical Education Estimate—Using the payment regression model and third year Medicare Cost Report data, a teaching estimate of 4.4 percent was obtained. The regression model was designed to estimate the effect of teaching effort on Medicare cost per case, after controlling for case mix, area wages, MSA size, the disproportionate share payment adjustment, and outlier payments. Outlier payments were estimated using fiscal year 1989 payment rules. A total of 4,928 PPS hospitals, excluding New Jersey and Maryland hospitals, were included in the analysis.

Payments under an adjustment of 4.4 percent would decline markedly for major teaching hospitals when compared to other teaching hospitals. Table A-9 compares the per-case percentage add-on to payments for two sample teaching hospitals under the 7.7 percent adjustment and the 4.4

Table A-9. Percentage Add-On to Payments for Two Sample Teaching Hospitals

	Add-On Percent for Teaching Under Current Adjustment* (7.7%)	Add-On Percent for Teaching Under Payment Model Estimate* (4.4%)
Major teaching hospital (IRB = .25)	17.9%	10.2%
Other teaching hospital (IRB = .05)	3.8	2.2

* PPS payments simulated using fiscal year 1989 policy rules, including changes resulting from implementation of the Medicare Catastrophic Coverage Act of 1988, Pub. L. 100-360.

SOURCE: ProPAC analysis.

percent estimate. For a major teaching hospital with an IRB of .25, the indirect medical education add-on for teaching effort would decline from 17.9 percent to 10.2 percent. The decrease would be much less for the teaching hospital with an IRB of .05, with the add-on percentage decreasing from 3.8 to 2.2 percent.

Teaching/Disproportionate Share Overlap—The analysis of the Commission focused on three areas:

- The interaction between the effects of teaching effort and low-income patient share on Medicare cost per case,
- The accommodation of any potential interaction in the design of the two payment adjustments, and
- The effect of lowering the indirect medical education adjustment to 4.4 percent.

Only urban hospitals with at least 100 beds were included in the analysis, since they receive the largest portion of disproportionate share payments and represent the majority of teaching hospitals. The analysis showed that current payments to urban hospitals receiving the teaching, the disproportionate share, or both payment adjustments were higher, on average, than the levels implied by the estimated effect of disproportionate share status and teaching effort on Medicare cost per case.

The same analysis was conducted substituting the 4.4 percent teaching estimate for the current 7.7 percent adjustment. The results showed that hospitals receiving only the disproportionate share adjustment continued, on average, to obtain pay-

ments in excess of the incremental Medicare costs associated with their low-income patient load. Hospitals receiving only the indirect medical education adjustment would now receive payments, on average, that were neither significantly lower nor higher than were indicated by the effect of teaching effort on Medicare cost per case.

The results for hospitals receiving both the indirect medical education and the disproportionate share adjustments were mixed, depending on the extent of their teaching effort and the size of their low-income patient load. In general, the 4.4 percent adjustment would provide sufficient payment to hospitals, on average, for the combined effects of teaching effort and low-income patient share on Medicare cost per case.

The analysis suggests that an interaction does exist between disproportionate share and teaching effort for larger urban hospitals. Teaching effort and disproportionate share patient load appear to have both separate and shared effects on Medicare cost per case. The analysis further suggests that this interaction has not been taken into account in the design of the teaching and disproportionate share payment adjustments.

Financial Impact of the 4.4 Percent Adjustment—In the Commission's June 1988 report, *Medicare Prospective Payment and the American Health Care System*, PPS operating margins were reported for the first three years of PPS. The analysis showed that through the third year of PPS, these margins were significantly higher for teaching hospitals compared with nonteaching hospitals. The difference in the margins is probably driven largely by revenue associated with increases in case mix, which were greater for teaching hospitals than for nonteaching hospitals.

The American Hospital Association conducted additional analysis for the Commission on total margins. This information is provided in Table A-10. Total margins, in contrast to PPS margins, reflect *all* sources of revenue and expenses for the hospital, including uncompensated care. The results showed that total margins for teaching hospitals overall were slightly higher than those of nonteaching hospitals. But major teaching hospitals had lower margins compared with both other teaching and nonteaching hospitals, while other teaching hospitals had the highest margins of the three groups.

Table A-10. Total Margins for Community Hospitals, 1987*

All community hospitals	4.3%
Teaching	4.4
Major teaching	2.5
Other teaching	5.3
Nonteaching	4.2

* Total margins reflect all sources of revenue and expense for hospitals, including uncompensated care.

SOURCE: American Hospital Association analysis of AHA Annual Survey, 1987.

The Commission then examined the impact of lowering the indirect medical education adjustment on payments to teaching hospitals. The Commission also considered the effects of budget neutrality. Under budget neutrality, the savings associated with lowering the medical education adjustment would be returned to all hospitals through corresponding increases in the standardized amounts. The Commission examined the impact of lowering the adjustment to 4.4 percent under the assumption of budget neutrality and under budget savings, using fiscal year 1989 payment rules. This information is displayed in Table A-11.

Reduction to a 4.4 percent indirect medical education adjustment under budget neutrality would lower payments to major teaching hospitals by 6 percent. This compares with an 8 percent reduction in payments for this same group of hospitals if savings are realized. Payments to other teaching hospitals would decrease only 0.2 percent under budget neutrality, while under budget savings payments would decline 2.3 percent. Finally, nonteaching hospitals' payments would increase 1.8 percent under budget neutrality, due to increasing the standardized amounts.

The Commission was concerned about the financial impact of implementing the full 4.4 percent adjustment, in light of information on both payment reductions and total margins. A proposal to phase in the adjustment over three years, at 1.1 percent for each year, was then evaluated. The impact of implementing the first phase of the reduction (decreasing the adjustment from 7.7 percent to 6.6 percent) on payments was examined under the assumptions of budget neutrality and budget savings. These results are also shown in Table A-11.

Under a 6.6 percent adjustment for indirect medical education and budget neutrality, payments to major teaching hospitals would decline almost 2 percent. Payments to other teaching hospitals would decline slightly, while payments to nonteaching hospitals would increase 0.6 percent. Under budget savings, the reduction in payments for major and other teaching hospitals would be 2.6 percent and 0.7 percent, respectively.

Conclusions

The Commission believes that the decision to modify the indirect medical education adjustment should be based on several important policy considerations. First, the medical education adjustment should be based on an empirically derived estimate of the relationship between teaching effort and Medicare cost per case, using the most recent cost data available. Using the payment model and third-year PPS Medicare Cost Report data, the analysis conducted by the Commission found the teaching estimate to be 4.4 percent.

The financial impact of lowering the adjustment on teaching hospitals is a second important factor to consider. The analysis revealed that immediate reduction of the medical education adjustment from the current level of 7.7 percent to 4.4 percent would have a dramatic effect on payments to major teaching hospitals. Concern about the impact of precipitously lowering payments to teaching hospitals led the Commission to recommend for fiscal year 1990 only one-third of the total reduction implied by the current estimate of 4.4 percent.

Another consideration is equity in the distribution of payments across hospitals. To ensure equitable distribution, a reduction in payments to teaching hospitals under the indirect medical

education adjustment should be accompanied by a redistribution of these dollars through corresponding increases in the basic payment to all hospitals. If this budget neutrality adjustment is not made, then the average payment to all hospitals would be inappropriately lowered.

The Commission's decision not to recommend a full reduction of the indirect medical education adjustment to 4.4 percent at this time is based on several considerations: (1) the need to phase in any substantial reduction in the medical education adjustment, (2) the need to continue to examine the

Table A-11. Percent Change from Fiscal Year 1989 PPS Per-Case Payments Under Four Alternative Medical Education Adjustments*

	4.4 Percent with Savings	4.4 Percent Budget Neutral	6.6 Percent with Savings	ProPAC Recommendation: 6.6 Percent Budget Neutral
All hospitals	-1.9%	0.0%	-0.6%	0.0%
Urban	-2.2	-0.1	-0.7	+
Rural	-0.3	0.6	-0.1	0.2
MSA > 1 million	-2.8	-0.7	-0.9	-0.2
Other urban	-1.5	0.6	-0.5	0.2
Sole community	+	0.1	+	+
Rural referral	-0.8	1.4	-0.2	0.5
Other rural	+	0.2	+	0.1
Major teaching	-8.0	-6.0	-2.6	-1.9
Other teaching	-2.3	-0.2	-0.7	-0.1
Nonteaching	0.0	1.8	0.0	0.6
Disproportionate share:				
MSA > 1 million	-4.2	-2.1	-1.3	-0.7
Other urban	-2.3	-0.2	-0.7	-0.1
Rural	+	0.5	+	0.2
Nondisproportionate share	-1.2	0.7	-0.4	0.2
New England	-3.0	-1.1	-1.0	-0.3
Middle Atlantic	-3.5	-1.5	-1.1	-0.5
South Atlantic	-1.3	0.5	-0.4	0.2
East North Central	-2.3	-0.4	-0.7	-0.1
East South Central	-1.0	0.8	-0.3	0.2
West North Central	-1.4	0.3	-0.5	0.1
West South Central	-1.0	0.8	-0.3	0.3
Mountain	-1.0	0.7	-0.3	0.2
Pacific	-1.3	0.8	-0.4	0.2
Puerto Rico	-1.2	0.8	-0.4	0.3
Urban < 100 beds	-1.2	1.0	-0.4	0.3
Urban 100-249 beds	-0.7	1.4	-0.2	0.5
Urban 250-404 beds	-1.5	0.6	-0.5	0.2
Urban 405-684 beds	-3.3	-1.3	-1.1	-0.4
Urban 685+ beds	-5.2	-3.2	-1.7	-1.0
Rural < 50 beds	+	0.3	+	0.1
Rural 50-99 beds	+	0.3	+	0.1
Rural 100-169 beds	+	0.8	+	0.3
Rural 170+ beds	-0.7	0.8	-0.2	0.3
Voluntary	-1.9	+	-0.6	+
Proprietary	-0.3	1.6	-0.1	0.5
Urban government	-3.4	-1.3	-1.1	-0.4
Rural government	-0.1	0.5	+	0.2

* PPS payments simulated using fiscal year 1989 policy rules, including changes resulting from implementation of the Medicare Catastrophic Coverage Act of 1988,

+ Pub. L. 100-360.

Less than 0.1 percent.

relationship between teaching effort and Medicare cost per case, and (3) the need to assess the effect of the reduction in the adjustment on teaching hospitals' overall financial viability. The

Commission believes that both the empirical estimate and the impact analysis should play major roles in establishing the level of the medical education adjustment.

GUILLAIN-BARRE SYNDROME

Guillain-Barre syndrome is a post-infectious polyneuropathy for which patients may require plasmapheresis, ventilation assistance, and long intensive care stays. GBS patients are assigned to DRGs 18 and 19 (cranial and peripheral nerve disorders with or without CC).

ProPAC was concerned that GBS patients, especially those with tracheostomy, may be much more resource intensive than the average for their DRGs. Two DRGs implemented in fiscal year 1988 apply to tracheostomy patients: DRG 474 (tracheostomy) and DRG 475 (mechanical ventilation through endotrachial intubation). However, these new higher-weighted DRGs apply only to patients in MDC 4 (respiratory system). They do not apply to GBS patients in MDC 1 (nervous system).

ProPAC analyzed fiscal year 1986 MedPAR data to evaluate the adequacy of the DRG assignment of and payment for GBS patients. Treatment patterns for GBS patients were compared to the average for all patients in DRGs 18 and 19. The volume of admissions, length of stay, costs, payments, proportion of outliers, use of intensive care, frequency of intubation, and distribution of cases across hospital types were analyzed. Further, resource use of GBS patients with tracheostomy was compared with all other GBS patients.

The payments and costs used in this analysis are simulated and therefore, do not reflect actual profits and losses. The ratio is a measure of the payment to cost experience of this DRG relative to all DRGs combined. The overall ratio of payments to costs for all DRGs was forced to equal 1.00. Thus, a DRG with a simulated payment to cost ratio of 1.10 is, for the purpose of this analysis, 10 percent more "profitable" than all DRGs combined. Similarly, a DRG with a payment to cost ratio of .85 is considered 15 percent less "profitable" than all DRGs combined.

Results—The 1,100 GBS patients comprised about 5 percent of all patients in DRGs 18 and 19. By all measures, GBS patients had substantially higher resource use on average when compared with patients in these DRGs. Fifty-eight of 69 tracheostomy patients in DRGs 18 and 19 were GBS patients with extremely high costs and length of stay. The Commission discussed potential DRG modifications being considered by HCFA that would specifically address the classification problems of tracheostomy patients.

DRGs 18 and 19 had payment/cost ratios of .87, indicating that, on average, payments cover less costs than in other DRGs. The payment/cost ratio for the GBS subgroup was much lower, about .4 for both DRGs.

A disproportionate share of GBS cases was found in the most costly hospitals for these DRGs. ProPAC evaluated the concentration of GBS patients in the hospitals with payment/cost ratios of less than 1.0. In most instances, there were fewer than two GBS patients per hospital.

Classification Alternatives—The Commission considered reclassifying GBS patients into a higher weighted DRG in MDC 1. The current classification of GBS patients as well as two alternatives are shown in Table A-12.

A comparison of 1986 average standardized total costs and DRG payment for GBS cases and all cases in these four DRGs is shown in Table A-13. Payments shown in the table are based on fiscal year 1988 DRG weights and payment rules, deflated to fiscal year 1986 payment levels.

Recommendation 13 in this report urges the Secretary to reassign patients with GBS from DRGs 18 and 19 to DRG 20, DRG 34, or to a new DRG. Further analysis used in developing the recommendation appears in ProPAC's technical report, *Analyses of DRG Classification and Assignment*.

Table A-12. Current and Alternative DRGs for GBS

DRG	Title	Fiscal Year 1989 Weight
<u>Current</u>		
18	Cranial and peripheral nerve disorders w/CC	0.96
19	Cranial and peripheral nerve disorders w/o CC	0.61
<u>Alternative</u>		
20	Nervous system infection except viral meningitis	1.71
34	Other disorders of nervous system, w/CC	1.27

SOURCE: ProPAC analysis of 1989 DRG classification and weights.

Table A-13. 1986 Average Standardized Costs and Payment for GBS Cases and Selected DRGs

	Average Costs	Average Payment*
GBS cases	\$9,150	\$2,250
DRG 18	3,400	2,700
DRG 19	2,100	1,700
DRG 20	8,650 (charges)	4,750
DRG 34	6,500 (charges)	3,550

* Payments simulated by applying fiscal year 1988 payment rules to fiscal year 1986 MedPAR data and deflating to fiscal year 1986 payment levels.

SOURCE: ProPAC analysis of fiscal year 1986 MedPAR and second-year FPS Medicare Cost Report data.

OUTLIER PAYMENT POLICY

The PPS payment rate for each discharge is based on the average cost of all cases classified in the same DRG. Hospitals will, in any given year, treat some patients who cost more than the payment rate (incurring a loss) and some patients who cost less (generating a profit). Nevertheless, it is expected that, for most hospitals, small profits and losses average out over many cases (the statistical "law of large numbers"). Thus, on average, financial problems would be avoided by efficient hospitals.

This averaging assumption may not always lead to satisfactory results, for three reasons:

- The law of large numbers may not protect hospitals with small numbers of discharges or those which, by sheer chance, had an unusually large number of extremely costly cases;
- Extremely costly cases may be unevenly distributed across hospitals because of differences in the populations served or the kinds of services provided, resulting in unfair penalties to some types of hospitals; and
- Hospitals may be able, at the time of admission or soon thereafter, to identify patients who are likely to become extremely costly, and either refuse to admit them or transfer or discharge them inappropriately.

Outlier payment under PPS addresses these problems by providing additional compensation to hospitals for extremely long or costly cases (called day and cost outliers, respectively). This compensation is intended to defray some of the losses caused by both the random and non-random occurrence of outlier cases and avoid undesirable admission and transfer incentives that might threaten access to hospital care for some Medicare beneficiaries. At the same time, since the primary purpose of PPS is to increase efficiency, outlier payment should preserve the incentives that discourage unnecessarily long or expensive stays.

The key elements of the outlier payment policy are the total amount set aside for outlier payments (the outlier pool), the criteria for identifying cases

that qualify as day or cost outliers (the outlier thresholds), and the formulas that determine how much payment is to be made for each outlier case. Table A-14 describes these elements in each year since the implementation of PPS.

The outlier pool is expressed in terms of the percentage of the Federal portion of total PPS payments (excluding indirect medical education and disproportionate share payments) that is to be set aside for outlier payments.¹ It is, by law, required to be between 5 and 6 percent. Outlier payments are financed by a reduction in the Federal DRG payment rates by a percentage equal to the outlier pool.² The outlier pool for fiscal year 1988 was 5.1 percent.

By law, a case is defined as a day outlier if its length of stay exceeds the geometric mean of length of stay for the DRG plus the lesser of: (1) a fixed number of days, or (2) a multiple of the standard deviation of the distribution of length of stay within the DRG. For fiscal year 1988, the day outlier threshold was set equal to the geometric mean length of stay plus the lesser of 18 days or two times the standard deviation.

According to the law, a case is defined as a cost outlier only if its length of stay does not exceed the day outlier threshold. In addition, its adjusted charges, standardized for differences in teaching and disproportionate share status, must exceed the greater of: (1) a multiple of the Federal payment rate for the DRG; or (2) a fixed dollar amount, standardized for differences in area wages and cost of living. For fiscal year 1988, the cost outlier threshold was set equal to the greater of two times the Federal rate or \$14,000.

The determination of the outlier payment amount for each case depends on the marginal cost factor. This factor is intended to indicate the incremental cost of outlier cases beyond the relevant outlier threshold. Through fiscal year 1988, the marginal cost factor for both day and cost outliers was 60 percent. Day outliers thus received 60 percent of the average per diem Federal payment rate for the DRG for every day beyond the day outlier threshold. Cost outliers received 60 percent of the difference between adjusted charges and the cost outlier threshold.³

Table A-14. Elements of Outlier Payment Policy, Fiscal Years 1984-1989

	1984	1985	1986*	1987	1988	1989 ⁺
Outlier pool:	5.7%	5.0%	5.0%	5.0%	5.1%	5.1%
Urban	--	--	--	5.4%	5.6%	5.6%
Rural	--	--	--	2.2%	2.5%	2.2%
Federal portion	25%	50%	55%	75%	100%	100%
Day outlier threshold	Lesser of 20 days or $1.94 \times \text{std. dev.}$	Lesser of 22 days or $1.94 \times \text{std. dev.}$	Lesser of 17 days or $1.94 \times \text{std. dev.}$	Lesser of 17 days or $1.94 \times \text{std. dev.}$	Lesser of 18 days or $2 \times \text{std. dev.}$	Lesser of 24 days or $3 \times \text{std. dev.}$
Cost/charge ratio	72%	72%	72%	66%	66%	Hosp.-specific
Cost outlier threshold	Greater of $1.5 \times \text{DRG}$ Federal rate or \$12,000	Greater of $2 \times \text{DRG}$ Federal rate or \$13,000	Greater of $2 \times \text{DRG}$ Federal rate or \$13,500	Greater of $2 \times \text{DRG}$ Federal rate or \$13,500	Greater of $2 \times \text{DRG}$ Federal rate or \$14,000	Greater of $2 \times \text{DRG}$ Federal rate or \$28,000
Marg. cost factor:						
Day outliers	60%	60%	60%	60%	60%	60%
Cost outliers	60%	60%	60%	60%	60%	75%
Payment for dual outliers	Day precedence	Day precedence	Day precedence	Day precedence	Day precedence	Greater of day or cost

* Effective May 1, 1986.

+ Effective November 1, 1988.

SOURCE: PPS rules issued annually by the U.S. Department of Health and Human Services, Health Care Financing Administration.

As Table A-14 shows, there were no major changes in the outlier payment parameters during the first five years of PPS.

or cost outlier payment amounts, rather than the day outlier amount that they would have received under the previous rules. Both of these changes increase the emphasis on cost rather than length of stay in determining outlier payments.

Changes in Fiscal Year 1989

The outlier pool for fiscal year 1989 was set at 5.1 percent, as can be seen in Table A-14. While this is the same as the fiscal year 1988 outlier pool, other elements of the outlier payment policy have been significantly changed for fiscal year 1989.

The marginal cost factor for cost outliers was increased to 75 percent (for day and cost outliers in the burn-related DRGs, the marginal cost factor remains at 90 percent). In addition, day outliers that also would qualify for payment under the cost outlier criterion now receive the higher of the day

A hospital-specific cost-to-charge ratio, rather than a national average ratio, is now used to estimate the costs of the case from the charge data available on the Medicare bill. By taking into account the relationship between charges and costs at each hospital, the use of the hospital-specific ratio should increase the accuracy with which cost outliers are identified and paid.

Because the size of the outlier pool did not change, the changes described above required that the day and cost outlier thresholds be increased substantially. Outlier payments are thus focused on the most extreme cases, at the expense of those that are less extreme.

Effects by Hospital Group

Table A-15 displays the distribution of cases that are associated with extreme losses across groups of hospitals, and the effectiveness of alternative outlier payment policies in reducing the risk represented by these cases. For this analysis, an extreme loss is defined as a standardized loss⁴ of \$10,000 or more under a payment policy with no outlier payment.⁵

Table A-15 shows that the risk of large losses on individual cases is not spread evenly across hospital groups: city size, hospital size, and teaching status appear to be strongly related to this risk—even when differences in area wages, cost of living, and other payment variables are taken into account.

This table also shows that the old (pre-fiscal year 1989) outlier payment policy had a considerable mitigating effect on this risk, reducing the average

Table A-15. Effect of Alternative Outlier Policies on Financial Risk Represented by Cases with Large Losses Under PPS with No Outlier Payment*

Hospital Type	No Outlier Payment		Old Outlier Policy		New Outlier Policy		Old vs. New Outlier Policy
	Percent of Cases with Losses of at Least \$10,000*	Average Unstandardized Loss Per Case	Average Unstandardized Loss Per Case	Percent Reduction In Loss Per Case	Average Unstandardized Loss Per Case	Percent Reduction in Loss Per Case	
All	2.29%	\$22,436	\$15,573	30.6%	\$14,419	35.7%	7.4%
Urban	2.59	23,350	15,962	31.6	14,720	37.0	7.8
Rural	1.32	16,626	13,100	21.2	12,506	24.8	4.5
Large urban	2.86	24,796	16,674	32.8	15,484	37.6	7.1
Other urban	2.32	21,475	15,039	30.0	13,730	36.1	8.7
Rural referral	1.81	18,211	13,452	26.1	12,470	31.5	7.3
Sole community	1.41	16,686	16,022	4.0	15,636	6.3	2.4
Other rural	1.10	15,490	12,328	20.4	11,972	22.7	2.9
Disproportionate share:							
Large urban	3.10	28,236	17,580	37.7	16,775	40.6	4.6
Other urban	2.42	23,455	15,711	33.0	14,455	38.4	8.0
Rural	0.86	16,291	11,890	27.0	11,865	27.2	0.2
Non-disproportionate share	2.15	20,705	15,038	27.4	13,804	33.3	8.2
Major teaching	3.62	32,555	20,136	38.1	18,823	42.2	6.5
Other teaching	2.69	23,224	15,861	31.7	14,506	37.5	8.5
Non-teaching	1.90	19,374	14,247	26.5	13,293	31.4	6.7
New England	3.12	24,265	16,368	32.5	15,759	35.1	3.7
Middle Atlantic	2.26	26,040	13,996	46.3	14,408	44.7	-2.9
South Atlantic	2.59	20,570	14,310	30.4	13,380	35.0	6.5
East North Central	2.28	22,515	16,561	26.4	15,239	32.3	8.0
East South Central	1.88	19,455	13,616	30.0	12,876	33.8	5.4
West North Central	1.78	21,006	15,748	25.0	13,771	34.4	12.6
West South Central	2.25	20,279	14,951	26.3	12,952	36.1	13.4
Mountain	2.22	20,656	15,780	23.6	14,500	29.8	8.1
Pacific	2.35	25,380	18,961	25.3	16,650	34.4	12.2
Urban <100 beds	1.70	21,168	15,501	26.8	14,864	29.8	4.1
Urban 100-249 beds	2.18	21,087	14,945	29.1	14,156	32.9	5.3
Urban 250-404 beds	2.58	22,312	15,523	30.4	14,337	35.7	7.6
Urban 405-684 beds	3.00	24,835	16,738	32.6	15,133	39.1	9.6
Urban 685+ beds	3.54	27,801	17,401	37.4	15,780	43.2	9.3
Rural < 50 beds	0.63	14,466	12,690	12.3	12,381	14.4	2.4
Rural 50-99 beds	0.91	15,359	12,710	17.2	12,452	18.9	2.0
Rural 100-169 beds	1.41	15,546	12,384	20.3	11,908	23.4	3.8
Rural 170+ beds	2.08	18,294	13,818	24.5	12,946	29.2	6.3
Voluntary	2.37	22,754	15,674	31.1	14,504	36.3	7.5
Proprietary	2.51	19,937	14,225	28.7	13,842	30.6	2.7
Government	1.80	22,202	15,973	28.1	14,329	35.5	10.3

* Cases represented in this table are those with costs estimated to exceed payments by at least \$10,000 (adjusted for area wages and cost of living, case mix, and indirect medical education and disproportionate share payment differentials) under PPS with no outlier payment policy.

loss on these extremely costly cases by more than 30 percent.⁶ This effect was also spread unevenly across hospital groups, with hospitals in urban areas, large hospitals, and teaching hospitals benefiting more than other hospitals. Of particular note is the effect on hospitals in the Middle Atlantic region, which was approximately 50 percent greater than in any other region. Conversely, losses on exceptionally expensive cases in Sole Community Hospitals were not reduced to any significant degree by the old outlier policy.⁷

The fiscal year 1989 changes in outlier payment increased protection against the most extreme case-level losses by more than 7 percent, on average. The effect of the new policy also appears to be concentrated on hospitals in urban areas, large hospitals, and teaching hospitals. Other urban and other teaching hospitals appear to benefit most from the new policy, however, rather than large urban and major teaching hospitals. Again of special note is the effect on hospitals in the Middle Atlantic region. This is the only group that appears to be worse off under the new policy, although the cumulative effect of outlier payment is still considerably greater for these hospitals than for those in any other region. Sole Community Hospitals continue to receive much less than the average amount of protection under the new policy.

Another aspect of the risk faced by hospitals under PPS is the distribution of cases with costs that exceed payments by a relatively small amount. Although these cases represent losses to the hospitals that treat them, they are not "outliers" in the sense of representing exceptionally large losses on the case level. For this analysis, a case with a relatively small loss is defined as one with estimated costs between 100 and 150 percent of payments under a policy with no outlier payment. As can be seen in Table A-16, these cases are numerous, and they are more likely to occur in rural and nonteaching hospitals.

Table A-17 describes the relative precision of the old and new outlier policies. The percentage of outlier payments for cases associated with the largest losses rises from 79 to 90 percent under the new policy. On the other hand, the percentage of outlier payments for cases associated with relatively small losses falls from 3.3 to 1.9 percent.

Table A-16. Cases with Small Losses Under PPS with No Outlier Payment*

Hospital Type	Percent of Cases with Costs Equal to 100-150 Percent of Payments*	Average Unstandardized Loss Per Case
All	21.25%	\$ 831
Large urban	20.81	998
Other urban	20.25	844
Rural	23.57	568
Disproportionate share:		
Large urban	19.34	1,132
Other urban	18.50	881
Rural	21.44	515
Non-disproportionate share	22.17	781
Major teaching	17.30	1,332
Other teaching	20.36	944
Non-teaching	22.25	723

* Cases represented in this table are those with costs estimated to be between 100 and 150 percent of payments under PPS with no outlier payment policy.

SOURCE: ProPAC simulations using fiscal year 1987 MedPAR file.

Again, the effect on the Middle Atlantic region is noteworthy. Even under the new policy, a much larger than average proportion of outlier payments in that region appears to be for cases with relatively small estimated losses.

DRG-Level Analysis

Table A-18 shows that the percentage of outlier payments varies widely across DRGs. Outlier payments account for 5.1 percent of total PPS payments across all DRGs for fiscal year 1989. For more than 10 percent of all DRGs, however, outlier payments comprise more than 10 percent of PPS payments. For more than 30 percent of all DRGs, outlier payments comprise less than 2 percent of PPS payments. Since the payment rates for all DRGs are reduced by the same percentage (5.6 percent for urban hospitals and 2.2 percent for rural hospitals) to provide for outlier payment, this indicates that cases in some DRGs are subsidizing payment for outlier cases in others.

The results of this subsidization are evident in Table A-19. As would be expected, DRGs with the highest coefficients of variation (and thus the greatest likelihood of outlier cases) have many more cases that are associated with large losses. These DRGs, however, are also associated with the highest overall PPS margins.⁸ This is because the basic

payment rates for these DRGs reflect the across-the-board outlier offset, while hospitals treating

these cases receive a much higher percentage of additional outlier payments.

Table A-17. Percent of Outlier Payments Under Alternative Outlier Policies for Cases with Large and Small Losses*†

Hospital Type	Percent of Outlier Payment for Cases with Large Losses (Exceeding \$10,000 Under PPS with No Outlier Payment)*			Percent of Outlier Payment for Cases with Small Losses (Costs Between 100 and 150 Percent of Payments Under PPS with No Outlier Payment)†		
	Old Policy	New Policy	Percent Change	Old Policy	New Policy	Percent Change
All	78.74%	90.12%	14.5%	3.33%	1.87%	-43.8%
Urban	78.55	89.87	14.4	3.51	1.96	-44.2
Rural	81.11	93.34	15.1	1.07	0.66	-38.3
Large urban	77.44	88.62	14.4	3.82	2.28	-40.3
Other urban	80.36	91.81	14.2	3.01	1.47	-51.2
Rural referral	82.13	93.68	14.1	1.59	0.98	-38.4
Sole community	84.42	96.37	14.2	0.52	0.15	-71.2
Other rural	79.95	92.80	16.1	0.59	0.34	-42.4
Disproportionate share:						
Large urban	74.47	84.85	13.9	4.57	3.04	-33.5
Other urban	78.01	89.29	14.5	3.52	1.93	-45.2
Rural	80.28	92.58	15.3	0.67	0.24	-64.2
Non-disproportionate share	80.89	92.49	14.3	2.73	1.39	-49.1
Major teaching	76.79	85.70	11.6	4.05	2.68	-33.8
Other teaching	78.18	89.42	14.4	3.54	2.17	-38.7
Non-teaching	80.23	92.83	15.7	2.78	1.17	-57.9
New England	81.86	90.73	10.8	2.19	1.56	-28.8
Middle Atlantic	67.14	76.15	13.4	6.03	5.02	-16.7
South Atlantic	82.46	93.79	13.7	2.41	0.69	-71.4
East North Central	81.59	92.99	14.0	1.99	1.13	-43.2
East South Central	79.03	92.69	17.3	3.00	1.19	-60.3
West North Central	83.04	94.34	13.6	2.29	1.36	-40.6
West South Central	84.06	95.81	14.0	2.53	0.87	-65.6
Mountain	86.67	96.41	11.2	3.01	0.88	-70.8
Pacific	85.75	95.74	11.7	2.51	0.81	-67.7
Urban < 100 beds	76.31	88.58	16.1	2.77	1.62	-41.5
Urban 100-249 beds	78.65	91.21	16.0	3.16	1.46	-53.8
Urban 250-404 beds	79.51	91.04	14.5	3.49	1.85	-47.0
Urban 405-684 beds	78.30	89.43	14.2	3.79	2.17	-42.7
Urban 685+ beds	77.67	87.14	12.2	3.63	2.46	-32.2
Rural < 50 beds	75.96	91.69	20.7	0.48	0.33	-31.2
Rural 50-99 beds	80.51	93.79	16.5	0.36	0.10	-72.2
Rural 100-169 beds	76.31	88.58	16.1	0.63	0.26	-58.7
Rural 170+ beds	81.41	93.09	14.3	1.53	1.01	-34.0
Voluntary	78.33	89.36	14.1	3.27	2.08	-36.4
Proprietary	79.84	94.74	18.7	4.67	0.95	-79.7
Government	81.16	92.01	13.4	2.31	1.15	-50.2

* Cases represented in this table as those with large losses are those with costs estimated to exceed payments by at least \$10,000 (adjusted for area wages and cost of living, case mix, and indirect medical education and disproportionate share payment differentials) under PPS with no outlier payment policy.

+ Cases represented in this table as those with small losses are those with costs estimated to be between 100 and 150 percent of payments under PPS with no outlier payment policy.

Table A-18. Distribution of Outlier Payments Across DRGs

Groups of DRGs by Outlier Payments as a Percentage of Total PPS Payments	Percent of All DRGs
0-1%	15.1%
1-2%	16.0
2-3%	16.9
3-4%	12.8
4-5%	8.5
5-6%	6.3
6-7%	4.1
7-8%	4.8
8-9%	2.9
9-10%	2.2
Over 10%	10.4

SOURCE: ProPAC simulations using fiscal year 1989 PPS payment rules applied to fiscal year 1987 MedPAR file data.

Table A-19. PPS Margins for Cases with Largest Losses in DRG and Average PPS Margins for All Cases in DRG, by Degree of Variation in Case-Level Costs Within DRG

Groups of DRGs by Coefficient of Variation	PPS Margin for 5 Percent of Cases with Largest Losses	Average PPS Margin for All Cases
20-40%	-69%	1.5%
40-60%	-77	2.1
60-80%	-108	1.2
80-100%	-126	4.8
100-120%	-130	8.4
120-140%	-135	11.2
140-160%	-125	18.8
Over 160%	-124	11.8

SOURCE: ProPAC simulations using fiscal year 1989 PPS payment rules applied to fiscal year 1987 MedPAR file data.

Conclusions

Several conclusions may be drawn from the data presented in this analysis. The changes in outlier payment that were implemented during fiscal year 1989 appear to have increased the amount of protection against large case-level losses. These changes also appear to have increased the precision of outlier payment, by reducing the proportion of outlier payment for cases that do not represent exceptional losses.

Both the risk of large losses and the reduction of this risk by outlier payment is spread unevenly across hospital groups, however. Although the new outlier policy appears to have reduced the risk that hospitals face, some types of hospitals, particularly small and rural hospitals, are not as effectively protected against risk as others, particularly large, urban, and teaching hospitals. On the other hand, large, urban, and teaching hospitals are much more likely to experience large losses from individual cases. Evaluations of the outlier payment policy must balance two competing objectives: protecting

small hospitals against the failure of the law of large numbers, and compensating large hospitals for the systematic risk imposed by the more complex and varied case load that they treat.

The occurrence of outlier cases is also unevenly spread across DRGs. Since PPS payment rates for all DRGs are reduced by the same factor (although different for urban and rural hospitals), DRGs with a small number of outliers effectively subsidize those with a large number of outliers. Thus, even though DRGs with a large number of outliers contain more cases that represent financial losses to the hospitals that treat them, they have higher average PPS margins. The issue of inter-DRG equity is an important consideration in improving the accuracy of DRG payment rates, and thus the payment system as a whole.

The findings presented here indicate that, although there has been an improvement in the outlier payment policy, much more work remains to be done.

Notes

1. During the transition from hospital-specific to fully Federal PPS payment rates, outlier payment amounts were applied only to the Federal portion of the payment rate. Thus, in fiscal year 1984, when PPS payments were only 25 percent dependent on the Federal rate, the 5.7 percent outlier pool amounted to only about 1.4 percent of total PPS payments.
2. In fiscal year 1987, separate outlier pools were established, and since then separate reduction factors are calculated for urban and rural hospitals.
3. For outlier cases in the six burn-related DRGs discharged between April 1, 1988 and September 30, 1989, the marginal cost factor is legislatively set at 90 percent.
4. For this analysis, a standardized loss is defined as the difference between cost and payment, adjusted for differences in area wages and cost of living, case mix, and indirect medical education and disproportionate share payment differentials.
5. This policy is simulated by eliminating outlier payments from the current policy and increasing the DRG payment rates by the outlier pool percentage.
6. The old outlier policy was simulated by using the current payment rules, with day and cost thresholds that were in effect for the first month of fiscal year 1989.
7. This is due to some extent to the fact that PPS payment for Sole Community Hospitals is primarily based on their hospital-specific payment rates, to which outlier payments do not apply. However, accounting for this fact would still indicate that Sole Community Hospitals receive substantially less protection from the losses associated with extremely costly cases than do other hospitals.
8. DRG-level PPS margins are defined as total PPS payments less costs for the DRG, as a percentage of payments.

Appendix B. Technical Report Series

EXTRAMURAL TECHNICAL REPORT SERIES

Completed

E-87-01: Improving the Definition of Hospital Labor Market Areas and Wage Indexes (Abt Associates, Inc.)

Methods for improving the definition of hospital labor market areas were investigated. This report identifies urban and rural labor market areas with the greatest amount of wage variation. It also examines the sources of wage variation within current labor markets and possible improvements in the area wage adjustment. (2/87)

E-87-02: A Review of Adjustment Methodologies for Hospital Outcome Studies (Project HOPE)

This report reviews the literature, catalogs existing methods for adjusting outcome statistics, studies the adequacy of existing databases, and assesses strengths and weaknesses of various adjustment methods. (1/88)

E-87-03: Developing a Measure of Complexity of Illness Within DRGs (SysteMetrics/McGraw-Hill, Inc.)

This study refined the Commission's methodology for estimating the annual component of real case-mix change within DRGs. The methodology was used to develop annual estimates of within-DRG case-mix change for Medicare patients from 1984 to 1986. It will also be used by the Commission to estimate this component of real case-mix change in future years as additional Medicare data become available. Estimates from this study will also be used to analyze the indirect medical education adjustment. (7/88)

E-87-04: The Changing Structure of the Health Care Industry and the Influence of Medicare Prospective Payments (Bernard Friedman, Ph.D.)

This report discusses horizontal and vertical consolidation in the hospital industry during the

pre- and post-PPS periods. The relationship between prospective payment incentives and changes in the structure of the industry, as observed through adoption of these integration strategies, is examined. The author discusses the implications of industry structure changes for consumers, community goals, and Medicare program expenses. Empirical evidence of the changing structure of the industry is also included. (3/88)

E-87-05: Assessing Quality Assurance Software Packages (Health Economics Research, Inc.)

This report examines the spectrum of quality assurance (QA) software packages on the market and the impact of these packages on hospital QA functions. Information was obtained through two separate surveys—one of 20 software vendors concerning the characteristics of their product, and the other of 62 hospitals to determine the adoption rate for QA software. Selection process, transition period, vendor training and technical support, and impact of the software on operations are examined. Finally, to illustrate differences among QA software packages, the capability of five different systems to produce physician profiles was compared. (10/87)

E-87-06: Assessing the Adequacy of the Medicare Cost Report Data (SysteMetrics/McGraw-Hill, Inc.)

The perceived strengths and weaknesses of the Medicare Cost Report are examined in this report. Hospital financial officers, fiscal intermediaries, and industry representatives were surveyed. In general, the results of this study indicated that most hospitals believe the Medicare Cost Report is acceptable as a reimbursement tool. Most hospitals thought, however, that the Medicare Cost Report does not accurately measure the cost of care for Medicare beneficiaries because costs such as bad debt, charity care, and patient telephones are not recognized. PPS has resulted in changes in reporting practices; hospitals are paying increased attention to reporting pass-through items like capital and direct medical education. (4/88)

E-87-07: The Impact of Medicare Prospective Payment on the Use of Expensive Devices, 1984-86 (Project HOPE)

Trends in the use of medical devices such as pacemakers, joint prostheses, shunts, and grafts are examined from 1984 through 1986. The report focuses on device use within 30 DRGs to which such cases are frequently assigned and also looks for evidence of payment differentials that could create disincentives to device use. (3/88)

E-87-08: Trends in the Concentration of Six Surgical Procedures Under PPS and Their Implications for Patient Mortality and Medicare Cost (Project HOPE)

This report examines trends in hospitals' volumes of six specialized surgical procedures and the impact of those trends on mortality and costs. The six procedures are: coronary artery bypass grafting, total hip replacement, abdominal aneurysm repair, intestinal resection, transurethral prostatectomy, and carotid endarterectomy. (6/88)

E-87-09: Estimates of Hospital Industry Total Factor Productivity for the Period 1980-1986 (PPS and Excluded Facilities) (Health Economics Research, Inc.)

Measures of total factor productivity in both PPS and excluded hospitals were developed using AHA data. Labor and capital inputs and changes in the hospital product were included in the analysis. (2/88)

E-87-10: Estimating the Impact of Scientific and Technological Advances on Increases in Medicare Costs for Fiscal Year 1989 (Project HOPE)

In fiscal year 1986, the contractor refined ProPAC's approach to estimating the impact of scientific and technological advances on Medicare inpatient operating costs in PPS hospitals and PPS-excluded facilities. This task order refined the cost estimate techniques and developed more refined estimates of technology diffusion. (5/88)

E-87-11: Small Isolated Rural Hospitals: Alternative Criteria for Identification in Comparison with Current Sole Community Hospitals (SysteMetrics/McGraw-Hill, Inc.)

This study determined the number of facilities eligible to be designated Sole Community Hospitals (SCHs). The contractor also examined how the distribution of SCHs would change if the designation criteria were altered. This study also provided information used to analyze the financial vulnerability of small, isolated rural hospitals. (6/88)

E-87-12: Assigning Hospitals to Urbanized Areas Within Metropolitan Statistical Areas (Abt Associates, Inc.)

This report provides detailed step-by-step instructions for assigning hospitals within MSAs to urbanized areas as defined by the Census Bureau. It builds on previously completed work conducted by Abt Associates, *Improving the Definition of Hospital Labor Market Areas and Wage Indexes* (E-87-01). This report also responds to technical implementation issues raised by the Secretary in response to a ProPAC recommendation. (6/88)

E-88-01: Subacute Care in Hospitals, Synthesis of Findings from the 1987 Survey of Hospitals and Case Studies in Five States (Lewin and Associates, Inc.)

This document is the final report of an 18-month study of subacute care provided in hospitals, often referred to as transitional care. Results of a representative national survey of hospitals are presented, along with findings from case studies in five states (New York, California, Louisiana, Washington, and North Carolina). Data and information are also presented on other types of transitional care, such as home health and skilled nursing care. (9/88)

E-88-02: Analysis of Hospital Sensitivity to DRG Price Variation in the Medicare Prospective Payment System (SysteMetrics/McGraw-Hill, Inc.)

This study examined whether hospital behavior in rendering care and assigning resources is sensitive to differences between hospital costs and PPS prices. Health care consultants and hospital administrators were interviewed to: identify the extent and objectives of hospital strategies to concentrate in or discontinue selected services, assess whether these strategies are in direct response to variations in the DRG prices or other factors influencing hospital management, and examine the use of

product line management and service costing in hospitals' response to DRG price variations. (8/88)

Pending

Refinement of Measures of Complexity of Illness Within DRGs (SysteMetrics/McGraw-Hill, Inc.)*

This study refines the measure of within-DRG case-complexity change developed under an earlier study. Case-complexity change was measured by applying Patient Management Categories and Disease Staging to Medicare patient data that had already been grouped by DRG. In this study the contractor applied the methodology to 1987 data, estimated the impact of upcoding on the measure, and analyzed the strengths and weaknesses of the methodology. (4/89)

Urban/Rural Cost Differences (SysteMetrics/McGraw-Hill, Inc.)

The possible reasons for differences in urban and rural hospitals' average costs per case were synthesized from current research in this report. Specifically, the basis for the lower average costs of rural hospitals compared with urban hospitals was explored and further research was suggested. (3/89)

Treatment of Certain Hospital Labor Expenses in the PPS Market Basket (SysteMetrics/McGraw-Hill, Inc.)*

This study examined certain hospital labor expenses not directly measured by the PPS market basket (contract labor, employee bonuses, recruitment costs, employee benefits, overtime and part-time employment, and changes in employee skill mix). The project examined the current measurement of these costs in the market basket and changes between 1985 and 1988. The effect these labor expenses might have had on market basket increases, if directly measured in the market basket wage component, was estimated. The calculation of the Average Hourly Earnings for Non-Supervisory Hospital Workers and the Employment Cost Index for Hospitals is also described in the study. (3/89)

Methodology for Measuring Case-Mix Change (The RAND Corporation)*

ProPAC is assisting HCFA in a medical record reabstraction study. The purpose of this study is to

develop a method to distinguish case-mix increases caused by changes in coding practices from real case-mix changes. It will also provide information for developing and refining alternative ongoing data collection methods to monitor case-mix change over time. The Commission is contributing to the funding of this project in addition to providing support in designing, implementing, and monitoring the study. (6/89)

INTRAMURAL TECHNICAL REPORT SERIES

Completed

I-88-01: Proceedings from ProPAC's Technical Advisory Conference on Alternative Case-Mix Classification Systems

This paper summarizes the presentations made by the developers of six case-mix classification systems, outlines the case-mix studies funded by HCFA, and presents comparisons of case-mix classification systems. Finally, the paper presents ProPAC's conclusions on case-mix measurement. (1/88)

I-88-02: Recalibration Analysis Comparing Charge-Based and Cost-Based DRG Weights

ProPAC analyzed the two methods of recalibrating the DRG relative weights using charges only (charge-based) and charges that are adjusted by costs (cost-based). This report describes in detail the data, methods, and results of ProPAC's comparisons. (3/88)

I-89-01: Staffing Shortages and Hospital Responses

The report presents information on staffing shortages and hospital responses. A literature review provided information about staffing shortages for nursing and other allied health occupations. Telephone interviews provided additional information with anecdotal reports of staffing situations at individual hospitals. (3/89)

Pending

Analyses of DRG Classification and Assignment*

This report presents results of ProPAC's analyses of diagnosis-related group (DRG) classification and

assignment. Periodic adjustments to the DRGs are necessary to reflect new technologies, scientific advances, and changes in medical practice. This report includes information on Commission recommendations for classification or assignment improvements. These recommendations were related to new and changing technologies and practice patterns and to equity of payment among hospital groups. Analyses of other DRG classification and assignment issues are also included. (3/89)

Indirect Medical Education Payment Adjustment*

PropAC analyzed the effect of teaching effort on Medicare costs. The objectives of the analysis were: to estimate the relationship between teaching effort and Medicare cost per case using the most recent Medicare Cost Report data available; to examine the overlap between the indirect medical education and the disproportionate share payment adjustments; and to evaluate the financial impact of revising the indirect medical education adjustment. The report describes the methods and results of the analysis. (3/89)

Review of Medicare Cost Report Data for Policy Analysis*

This report summarizes the work undertaken by the Commission on the use of the Medicare Cost Report (MCR) data for decision making. The major activity the Commission initiated to identify improvements in the use of existing cost data for policy analysis was to convene a panel to discuss the strengths and weaknesses of the MCR. The report also summarizes PropAC's monitoring of HCFA's three-year demonstration assessing the costs and benefits of adding financial and utilization information regarding other payers to the MCR. (3/89)

Payment for Outlier Cases Under PPS*

This paper traces the development of PPS outlier payment policy, describing the initial objectives of the policy and the changes over time in the PPS regulations governing outlier payment. The impact of the policy is then examined, using data on the distribution of outlier cases, costs, and payments across hospital and patient groups to describe the risk faced by different types of hospitals and represented by different types of patients. (7/89)

CONGRESSIONALLY MANDATED REPORTS

Completed

C-88-01: An Evaluation of the Department of HHS's Report to Congress on Studies of Urban-Rural and Related Geographical Adjustments in the Medicare PPS

The Omnibus Budget Reconciliation Act of 1987 (OBRA 87) required PropAC to report to the Congress on its evaluation of the Secretary's study on the feasibility and impact of eliminating or phasing out separate urban and rural rates. The report contains an evaluation of the Secretary's study and future directions of Commission activities. (6/88)

C-88-02: Linking Medicare Capital Payments to Hospital Occupancy Rates

The Omnibus Budget Reconciliation Act of 1987 required PropAC to report to the Congress on the suitability and feasibility of linking Medicare capital payments to hospital occupancy rates. This was addressed by reviewing current Medicare capital payment principles, examining historical trends in capital costs and occupancy rates, and analyzing the relationship between capital costs and occupancy. (4/88)

C-88-03: Outlier Payment Alternatives for Burn Cases

The Omnibus Budget Reconciliation Act of 1987 required PropAC to study alternative payment methods for burn outlier cases under PPS. The Commission examined costs and PPS payments for all burn cases as well as for outlier cases only. Simulated differences between payments and costs for burn hospitals and units and other PPS hospitals were examined. (6/88)

C-88-04: Developing Medicare Payment for Hospital Outpatient Surgery: The Views of the Prospective Payment Assessment Commission

The Omnibus Budget Reconciliation Act of 1987 required the Secretary to solicit the views of PropAC in developing outpatient payment systems and to include these views in a series of reports to Congress. PropAC's report focuses on the facility component of payment for surgeries performed in hospital outpatient settings. (8/88)

C-88-05: Separate PPS Payment Rates for Hospitals in Large Urban Areas and Other Urban Areas*

The Omnibus Budget Reconciliation Act of 1987 required ProPAC to "evaluate the desirability of maintaining separate DRG prospective payment rates for hospitals located in large urban areas . . . and in other urban areas." The report describes the treatment of hospitals in different-sized urban areas under PPS. Descriptive information comparing hospitals in different-sized urban areas is presented, followed by a discussion of the PPS policy implications of variation in costs and margins by MSA size. (12/88)

Pending

Medicare Payment for Hospital Outpatient Surgery: The Views of the Prospective Payment Assessment Commission*

The Omnibus Budget Reconciliation Act of 1987 requires the Secretary to solicit the views of the Commission on prospective payment for hospital outpatient surgery. This report contains ProPAC's recommendations and related rationale on such payment policy beginning in fiscal year 1990. It also includes background information used by the Commission in its deliberations, including the findings of ProPAC's data analysis of hospital outpatient surgery costs. (4/89)

Payments to Hospitals Located in Rural Counties Redesignated as Urban Under Section 4005 of OBRA 1987

The Technical and Miscellaneous Revenue Act of 1988 requires ProPAC to study and report to Congress on (1) appropriate payment under PPS for hospitals located in certain rural counties that were redesignated as urban under section 4005 of OBRA 1987, and (2) the appropriate treatment of the wage and wage-related costs of these hospitals in computing area hospital wage indexes for the affected urban and rural areas. This study will focus on the financial impact of various policy options on both the redesigned hospitals and on other hospitals located in the affected urban and rural areas. (8/89)

Adjustment to the Nonlabor Portion of the Standardized Amount

The Omnibus Budget Reconciliation Act of 1987 requires ProPAC to analyze the feasibility and appropriateness of a geographic adjustment to the nonlabor-related portion of the PPS standardized amounts. Price data for nonlabor components of the hospital market basket will be compiled from available data sources in order to determine whether nonlabor prices vary by geographic area. The report will contain this information and the Commission's determination whether such an adjustment is feasible and appropriate. (10/89)

Medicare Payment for Hospital Outpatient Services: The Views of the Prospective Payment Assessment Commission

The Omnibus Budget Reconciliation Act of 1986 requires the Secretary to develop a model system for payment of hospital outpatient services other than ambulatory surgery by January 1, 1991. OBRA 1987 directs the Secretary to solicit the views of ProPAC in developing these policies. This report will contain ProPAC's recommendations and discussion on classification and payment of hospital outpatient services. The report will include a further examination of payment for hospital outpatient surgery within the context of a more comprehensive outpatient payment approach. (12/90)

Payment Adjustment for Home Intravenous (IV) Therapy

The Medicare Catastrophic Coverage Act of 1988 requires ProPAC to study and make recommendations to the Congress and the Secretary concerning the appropriate adjustment to PPS payment amounts after the implementation of the home IV benefit provision. The report will examine reductions in hospital costs due to the shift in IV drug therapy from the inpatient setting to the home. (3/91)

* Contains technical background information supporting recommendations made in this report.

Appendix C. ProPAC Operations

BIOGRAPHICAL SKETCHES OF COMMISSIONERS

Stuart H. Altman, Chairman

Stuart H. Altman, dean of the Florence Heller Graduate School for Social Policy, Brandeis University, and Sol C. Chaikin Professor of National Health Policy, is an economist whose research interests are primarily in the area of Federal health policy. He has been at Brandeis since 1977. Between 1971 and 1976, Dean Altman was deputy assistant secretary for planning and evaluation/health at the Department of Health, Education and Welfare (now the Department of Health and Human Services). In that position, he was one of the primary contributors to the development and advancement of the National Health Insurance proposal. From 1973 to 1974, he also served as the deputy director for health of the President's Cost of Living Council, where he was responsible for developing the council's program on health care cost containment. Formerly, Dean Altman taught at Brown University and at the University of California (Berkeley). He is a member of the Institute of Medicine of the National Academy of Sciences and former member of its governing council; a member of the board of Beth Israel Hospital (Boston); chairman of the board of the Health Policy Center at Brandeis; and president of the National Foundation for Health Services Research. He is a past president of the National Association for Health Services Research and former board member of The Robert Wood Johnson Clinical Scholars Program. Dean Altman also served on the President's Commission for a National Agenda for the Eighties. A member of several editorial boards, he has published extensively on various aspects of health care and public policy. Dean Altman received both an M.S. and a Ph.D. in economics from the University of California (Los Angeles).

Harold A. Cohen

Harold A. Cohen is a health services consultant and a lecturer in the Department of Health Care

Organization of The Johns Hopkins University. He has been with the university since 1972. From 1972 to 1987, he was the executive director of the Health Services Cost Review Commission of the state of Maryland. Before that, he was on the economics faculty of the University of Georgia. Dr. Cohen has been a leader in the development and administration of state-level cost review and rate-setting efforts. He is a member of the American Economic Association, the Southern Economic Association, the Western Economic Association, the American Public Health Association, and the Health Economic Research Organization. Dr. Cohen is the author of numerous professional publications. He holds an M.A. and a Ph.D. in economics from Cornell University, and received a bachelor's degree from Harpur College (now the State University of New York at Binghamton).

Curtis C. Erickson

Curtis C. Erickson is president and chief executive officer of Great Plains Health Alliance, Inc., a post he has held since 1959. He was that organization's assistant director from 1955 to 1959. Having served the American Hospital Association (AHA) in many capacities, he became chairman of Regional Advisory Board 6 and a trustee in 1987. He has also chaired AHA's advisory panel to the Center for Small or Rural Hospitals and has been a member of the Council on Management, the Council on Federal Relations, and a representative to the House of Delegates. President of the Lutheran Hospital Association of America from 1974 to 1975, Mr. Erickson was also on the board of trustees from 1972 to 1982. He was president of the Kansas Hospital Association from 1965 to 1966, a member of the board of governors of the Healthcare Stabilization Fund for the Kansas Department of Insurance, and past district governor of Rotary International. From 1983 to 1986, Mr. Erickson served on The Robert Wood Johnson Foundation's National Advisory Committee for the Rural Hospital Program of Extended Care Services. Mr. Erickson is a member of the American College of Healthcare Executives. From 1951 to 1955, he

served in the U.S. Air Force. He received a B.S. in business administration from Fort Hays Kansas State University in 1951.

William D. Fullerton

William D. Fullerton is an adjunct associate professor in the School of Medicine, University of North Carolina at Chapel Hill. From 1978 to 1984, he was principal and president of Health Policy Alternatives, Inc., where he is now a part-time consultant. The first deputy administrator of the Health Care Financing Administration (1977-78), Mr. Fullerton was also a special consultant to the Secretary of the Department of Health, Education and Welfare. He served as chief of the professional health staff, Committee on Ways and Means, U.S. House of Representatives, from 1970 to 1976. Mr. Fullerton was the first executive secretary of the Health Insurance Benefits Advisory Council in 1965-66. Before that, he held various positions in the Social Security Administration. He is a member of the Institute of Medicine of the National Academy of Sciences. Mr. Fullerton received a B.A. from the University of Rochester.

B. Kristine Johnson

B. Kristine Johnson is vice president, corporate affairs and corporate planning, and is a member of the senior management council of Medtronic, Inc. Joining the company in 1982 as director of public affairs, she subsequently served as vice president, public affairs and vice president, U.S. national accounts/customer marketing. She assumed her current post in 1987. Prior to that, Ms. Johnson was an executive of Cargill, Inc. She is a former chair of the health care financing committee and government affairs section of the Health Industry Manufacturers Association (HIMA). Ms. Johnson is vice chair of the University of Minnesota Hospital board and chairs its planning and development committee. She received a B.A. from Saint Olaf College and served on the college's board of regents from 1973 to 1986.

Sheldon S. King

Sheldon S. King is president of Stanford University Hospital and a clinical associate professor in the Department of Community, Family, and Preventive Medicine at Stanford's School of Medicine. From 1981 to 1985, he served simultaneously

as the hospital's executive vice president and director as well as the medical school's associate vice president for medical affairs. Mr. King was also director of hospitals and clinics, University Hospital, University of California Medical Center, from 1972 to 1981. He was executive director of the Albert Einstein College of Medicine from 1968 to 1972, and held various positions at Mount Sinai Hospital from 1957 to 1968. Mr. King was chairman of the administrative board of the Council of Teaching Hospitals of the Association of American Medical Colleges. Besides serving in the House of Delegates of the American Hospital Association, he is chairman of the advisory board of the American Board of Internal Medicine. He is a member of the Institute of Medicine of the National Academy of Sciences and the Accreditation Council for Graduate Medical Education. Mr. King is a Fellow of the American College of Health Care Executives, the American Public Health Association, and the Royal Society of Health. He received an A.B. from New York University and an M.S. from Yale University.

Barbara J. McNeil

Barbara J. McNeil is professor and head of the Department of Health Care Policy, Harvard Medical School, and professor of radiology at the Brigham and Women's Hospital. She is also director of the Center for Cost-Effective Care, Brigham and Women's Hospital, and deputy director for Residency Training, Joint Program in Nuclear Medicine, Harvard Affiliated Hospitals. Dr. McNeil is a member of the Harvard-MIT Division of Health Sciences and Technology. Her professional and advisory activities are extensive. She serves on the board of trustees of the Society for Medical Decision Making. Dr. McNeil is a member of the joint committee of the American College of Radiology, the Association of University Radiologists, and the Society of Chairmen of Academic Radiology. She is also a member of the Fleischner Society, the Institute of Medicine of the National Academy of Sciences, and the National Council on Radiation Protection and Measurements. She serves on the American College of Radiology's committees on nuclear radiology and on quality assurance and efficacy. Formerly, Dr. McNeil was on the board of the Association for Health Services Research, the policy council of the Association for Public Policy Analysis and Management, and a member of the National Council on Health Care Technology.

She has written five books and more than 150 professional articles and reports. Dr. McNeil has an A.B. in chemistry from Emmanuel College, an M.D. from Harvard Medical School, and a Ph.D. in biological chemistry from Harvard University.

Kathryn M. Mershon

Kathryn M. Mershon is senior vice president at Humana, Inc., a position she has held since 1988. She previously served as Humana's vice president, nursing. She holds an adjunct assistant professorship of nursing at Spalding University. From 1971 to 1980, Ms. Mershon was associate executive director-nursing at St. Joseph Infirmary (now Humana Hospital Audubon) in Louisville, Kentucky. Before that, she was a clinical nursing specialist at St. Joseph Infirmary, clinical instructor at St. Francis Xavier Hospital School of Nursing, and a staff nurse. She has a distinguished list of professional and community activities, including board of governors of the Federation of American Health Systems, board member of the National League for Nursing, and editorial review board of *Nursing & Health Care*. She is a former trustee of Spalding University and member of the advisory board of the University of Louisville's School of Nursing. Ms. Mershon also served on the Louisville Board of Health and on the board of governors of Louisville General Hospital. She has made numerous public presentations on a variety of nursing-related issues. Ms. Mershon received a B.S. in nursing from Spalding University and an M.S. in nursing from St. Louis University.

James J. Mongan

James J. Mongan is the executive director of the Truman Medical Center, Kansas City, Missouri, and dean of the University of Missouri-Kansas City School of Medicine. He holds professorships in the School of Medicine and the School of Business and Public Administration at the University of Missouri-Kansas City. From 1979 to 1981, he was the associate director for health and human resources, Domestic Policy Staff, the White House. Dr. Mongan served as deputy assistant secretary for health policy at the Department of Health, Education and Welfare from 1977 to 1979 and was the Secretary's special assistant for National Health Insurance. For seven years before that, he was a professional staff member of the Committee

on Finance, U.S. Senate. Dr. Mongan is a member of the board of trustees of the American Hospital Association and a member of the House of Delegates. He is on the board of the Council of Teaching Hospitals of the American Association of Medical Colleges and a member of the advisory committee for The Robert Wood Johnson Foundation's Program for Prepaid Managed Health Care. Dr. Mongan received A.B. and M.D. degrees from Stanford University.

Eric Muñoz

Eric Muñoz, an academic surgeon, is the medical director of the Hospital of the University of Medicine and Dentistry of New Jersey in Newark, and associate dean for clinical affairs and associate professor of surgery at the New Jersey Medical School. He was head of the research division of the department of surgery at the Long Island Jewish-Hillside Medical Center. He has been on the surgical faculty of the State University of New York at Stony Brook, the Yale University School of Medicine, and New York Medical College. Dr. Muñoz is nationally recognized for his research on the DRG payment mechanism, which has focused on the higher costs of emergency hospital admissions. He is also a specialist on problems of health care delivery to the poor. Dr. Muñoz was president of the American Association of Puerto Rican Scientists and served on the board of that organization. His other numerous professional affiliations include Fellow of the American College of Surgeons, the Association for Academic Surgery, and the International Health Economics and Management Institute. He is certified by the American Board of Surgery. Dr. Muñoz has published more than 30 articles on health care costs. He received a B.A. in psychology from the University of Virginia, an M.D. from the Albert Einstein College of Medicine, and an M.B.A. in finance and economics from Columbia University. Dr. Muñoz trained in general and peripheral vascular surgery at Yale University.

John C. Nelson

John C. Nelson is a practicing obstetrician and gynecologist in Salt Lake City, Utah. He has been involved in cost-containment efforts at local and state levels and is active in the American Cancer Society as well as numerous other medical and civic efforts. A member of the American Medical

Association, Dr. Nelson is the delegate from Utah and serves on the work group on evaluation, assessment, and control Health Policy Agenda for the American People. He is a delegate to the Utah State Medical Association House of Delegates, and serves on the editorial board of the *Utah Medical Bulletin* as well as on the board of the Utah Health Cost Management Foundation. Dr. Nelson is also a member of the board of the Utah Professional Review Organization and the governor's Select Advisory Committee on Child Abuse and Neglect. He is former director of cost containment for Blue Cross/Blue Shield of Utah. Dr. Nelson took his internship at the Providence Hospital in Portland, Oregon, and a residency with the Department of Obstetrics and Gynecology at the University of Utah. He is board-certified by the American Board of Obstetrics and Gynecology, and a Fellow of the American College of Obstetrics and Gynecology. He received a bachelor's degree in zoology from Utah State University and an M.D. from the Utah College of Medicine.

Leonard D. Schaeffer

Leonard D. Schaeffer is president and chief executive officer of Blue Cross of California. He came to Blue Cross from his position as president of Group Health, Inc. Mr. Schaeffer was formerly executive vice president and chief operating officer of the Student Loan Marketing Association. He served as administrator of the Health Care Financing Administration, Department of Health and Human Services, and as assistant secretary for management and budget in the Department of Health, Education and Welfare. Before that, Mr. Schaeffer was vice president of Citibank, N.A. He has held various positions with the state of Illinois, including director of the Bureau of Budget, head of the State Planning Office, chairman of the Illinois Capital Development Board, and deputy director for management, Illinois Department of Mental Health and Developmental Disabilities. He was previously vice president of a private investment banking firm and a consultant for Arthur Anderson & Company. A Kellogg Fellow, Mr. Schaeffer was also on the executive committee of both the National Cooperative Business Association and the Minnesota Coalition on Health Care Costs. He was graduated from Princeton University.

Bert Seidman

Bert Seidman has been the director of the Department of Occupational Safety, Health and Social Security of the AFL-CIO, Washington, D.C., since 1983. From 1962 to 1966, he was the AFL-CIO European economic representative stationed in Paris and then in Geneva. Before that, he served for 14 years as an economist in the research department of the AFL and the AFL-CIO. In 1966, he became director of the AFL-CIO Social Security Department. He was a member of the U.S. labor delegation to the annual conference of the International Labor Organization (ILO) from 1958 to 1976 and, from 1972 to 1975, was a member of the ILO governing body. In 1973 and 1974, he was the U.S. worker delegate to the ILO conference. He returned to the ILO conference in 1987 and 1988 as a member of the U.S. labor delegation. Mr. Seidman has served on numerous committees, including the Federal Advisory Council on Employment Security, the Advisory Council on Health Insurance for the Disabled, the Task Force on Medicaid and Related Programs, the Advisory Council on Social Security, the Federal Hospital Council, the Board of Trustees of Group Health Association of Washington, D.C., the Health Insurance Benefits Advisory Council, the Blue Cross Advisory Committee, the National Commission on Unemployment Compensation, the Brookings Institution Advisory Panel on Long-Term Care, and the 1981 White House Conference on Aging (the Advisory Committee and chairman of the Technical Committee on Retirement Income). At present, he is a member of the Managed Health Care Council, the National Advisory Committee to The Robert Wood Johnson Foundation on Community Programs for Affordable Health Care, the Advisory Council on Employee Welfare and Benefit Plans, and the Wellness Council of America. Mr. Seidman is also a board member of the National Council of Senior Citizens and the National Council on Aging, a vice president of the National Consumers League, and chairman of the Washington, D.C., chapter of the Jewish Labor Committee.

Jack K. Shelton

Jack K. Shelton is manager of the Employee Insurance Department of the Ford Motor Company,

which he joined in 1956. He is responsible for the financial control and analysis of nearly all employee benefit plans. In this capacity, he participates in union negotiations, relations with insurance carriers, and financial control of company-administered plans. He also reviews changes in wage and benefit programs for foreign subsidiaries. Mr. Shelton is actively involved in a number of local and national health care organizations, serving as a director of the National Fund for Medical Education, a director of Blue Cross and Blue Shield of Michigan, and a member of the Statewide Health Coordinating Council of Michigan. In 1985, he was a member of an Office of Technology Assessment Advisory Panel on Alternative Physician Payments for Medicare and chairman of the Employer Prospective Payment Advisory Commission for the Washington Business Group on Health. He is past chairman of the National Industry Council on HMO Development, the Michigan Health Economics Coalition, the Michigan Hospital Capacity Reduction Corporation, and the Health Alliance Plan (Michigan's largest HMO). Mr. Shelton received B.S. and M.S. degrees in industrial psychology from Oklahoma State University.

J. B. Silvers

J. B. Silvers is co-director of the Health Systems Management Center of Case Western Reserve University. He is also the William M. and Elizabeth C. Treuhaft Professor at the University's Weatherhead School of Management and the School of Medicine. Before joining Case Western Reserve, Dr. Silvers was a faculty member at the business schools of Indiana, Harvard, and Stanford. He served the U.S. Department of Health and Human Services as a member of the Secretary's Commission on Nursing and as a member of the Health Care Technology Study Section of the National Center for Health Services Research. During 1983-84, he chaired the Governor's Commission on Ohio Health Care Costs. He has written extensively in the fields of corporate financial management, and health care and hospital finance. He also serves as a consultant or adviser to numerous private organizations. Dr. Silvers received a Ph.D. in finance and economics from Stanford University and M.S. and B.S. degrees from Purdue University in industrial administration and engineering, respectively.

Bruce C. Vladeck

Bruce C. Vladeck is president of the United Hospital Fund of New York. Immediately before joining that organization, Dr. Vladeck was assistant vice president of The Robert Wood Johnson Foundation. From 1979 to 1982, he was assistant commissioner for health planning and resources development of the New Jersey State Department of Health. In that position, he was director of the State Health Planning and Development Agency, where he oversaw the implementation of New Jersey's all payer, DRG-based hospital prospective payment system. Dr. Vladeck taught for four and one-half years at Columbia University, and has served on the adjunct faculty of Rutgers, Princeton, the College of Medicine and Dentistry of New Jersey, and New York University. He is the author of *Unloving Care: The Nursing Home Tragedy*, and has written numerous articles and book chapters on health policy, health care finance, and health politics. He is a member of the New York State Council of Health Care Financing, the Institute of Medicine of the National Academy of Sciences, and various national advisory committees of The Robert Wood Johnson Foundation. Dr. Vladeck, who is a Fellow of the New York Academy of Medicine, also serves on the board of the Association for Health Services Research. He received a bachelor's degree in government from Harvard College and M.A. and Ph.D. degrees in political science from the University of Michigan.

Sankey V. Williams

Sankey V. Williams is director of The Robert Wood Johnson Foundation Clinical Scholars Program at the University of Pennsylvania. He also serves as associate professor of medicine at the Hospital of the University of Pennsylvania and associate professor of health care systems at the university's Wharton School. In addition, he is associate director for medical affairs in the Wharton School's Leonard Davis Institute of Health Economics. He is an associate in the Clinical Epidemiology Unit of the university and previously served as associate director for clinical research at the University of Pennsylvania's Center for the Study of Aging. He was a Henry J. Kaiser Family Foundation Faculty Scholar in general internal medicine from 1981 to 1986. Dr. Williams currently serves on the editorial boards of *Medical Decision*

Making and the *Journal of General Internal Medicine*. He also serves as consultant to the *Annals of Internal Medicine* for the series, "Diagnostic Decisions." Dr. Williams, who is certified by the American Board of Internal Medicine, has published and lectured widely in many fields, including medical decision making, physician behavior, and hos-

pital case-mix management. Dr. Williams received a B.A. from Princeton University and an M.D. from Harvard Medical School. He completed his internship and residency in medicine at the Hospital of the University of Pennsylvania and was a Robert Wood Johnson Foundation Clinical Scholar at the university.

PROSPECTIVE PAYMENT ASSESSMENT COMMISSION POLICY STATEMENT

Responsibilities—The Prospective Payment Assessment Commission (ProPAC) has two major responsibilities. First, it recommends annually to the Secretary of the Department of Health and Human Services the appropriate annual percentage change in payment for hospital inpatient discharges. The Commission is to report its recommendations to the Secretary by March 1st of each year. Second, it consults with and recommends to the Secretary needed changes in the diagnosis-related group (DRG) classification (e.g., new DRGs, modifications to existing DRGs) and in the relative weighting factors of the DRGs. In addition, the Commission is required to report to the Congress its evaluation of any adjustments made by the Secretary regarding the DRG classification and weighting factors.

In making its recommendations, the Commission will consider the hospital market basket, hospital productivity, technological and scientific advances, quality of care, and long-term cost-effectiveness of services. In order to carry out its responsibility to identify medically appropriate patterns of health resources use, the Commission is required to collect and assess information on regional variations in medical practice; length of hospitalization; and the safety, efficacy, and cost-effectiveness of new and existing medical and surgical procedures, practices, services, and technologies. While the Commission will use existing information where possible, it will also use its research authority to award grants or contracts where existing information is inadequate.

The Commission shall focus primarily on the two responsibilities cited above. Other responsibilities will be pursued to the limit of available staff and resources. The Commission will also monitor executive and legislative branch actions in regard to other areas.

Relationship to the Public—The Commission welcomes and encourages constructive relations with the public. Its meetings will be open, and it will maintain a mailing list, to the extent its funds allow, in order to keep the interested public informed of its activities and meetings.

Intramural and extramural analytic documents prepared for the Commission will be made publicly available on a case-by-case basis. Generally, final reports will be made available as part of a Technical Report Series. As a rule, technical reports will be distributed without charge to any requesting party.

The Commission encourages consumers, hospitals, physicians, business firms, and other individuals and groups to submit information, preferably in writing, with respect to medical and surgical procedures, services, practices, and technologies or other information relevant to the Commission's responsibilities. The Commission will consider this information in making reports and recommendations to the Secretary and the Congress.

However, it is extremely important to remember that the Commission is not an appeals body. It has no appeals functions or regulatory powers. The information accompanying an appeal may be used as data on system-level trends.

COMMISSION STRUCTURE, ASSIGNMENTS, AND MEETING DATES

Structure and Assignments

Subcommittee on Data Development and Research

The subcommittee is charged with identifying data needs and availability of data sources relevant to the Commission's responsibilities. In consultation with interested persons and experts, the subcommittee will analyze issues related to data needs, sources, and availability. It will also examine the strengths and weaknesses of the data and will report its findings to the full Commission. Where data are needed but unavailable, the subcommittee will present options and recommendations for data development for presentation to the Commission.

Subcommittee on Hospital Productivity and Cost-Effectiveness

The subcommittee is charged with identifying and examining procedures and issues related to the measurement of productivity and cost-effectiveness, including an examination of the hospital market basket and related variations in the provision of hospital services. In consultation with interested persons and experts, the subcommittee will analyze issues related to hospital productivity and cost-effectiveness and will present its findings, including options and recommendations, to the full Commission.

Subcommittee on Diagnostic and Therapeutic Practices

The subcommittee is charged with identifying and examining technological and scientific advances, changing treatment patterns, and quality of care issues. The subcommittee is also responsible for examining the safety, efficacy, and relative cost-effectiveness of medical and surgical procedures, services, and technologies as they relate to the Commission's primary responsibilities. In consultation with interested persons and experts, the subcommittee will analyze issues related to the assessment of new and existing procedures, services, and technologies. It will present its findings, including options and recommendations, to the full Commission.

Members

Bruce C. Vladeck, *Chair*
 Harold A. Cohen
 Barbara J. McNeil
 Eric Muñoz
 Sankey Williams

Members

Harold A. Cohen, *Chair*
 Curtis C. Erickson
 Kathryn M. Mershon
 James J. Mongan
 Leonard D. Schaeffer
 Bert Seidman
 Jack K. Shelton
 Bruce C. Vladeck

Members

Barbara J. McNeil, *Chair*
 William D. Fullerton
 B. Kristine Johnson
 Sheldon King
 Eric Muñoz
 John C. Nelson
 J.B. Silvers
 Sankey Williams

ProPAC-PPRC Liaison Subcommittee

The subcommittee is responsible for information exchange and coordination of the work of ProPAC and the Physician Payment Review Commission (PPRC). The subcommittee will identify areas of mutual or overlapping interest and foster staff and commission collaboration where appropriate.

Members

John M. Eisenberg, PPRC
William D. Fullerton, ProPAC
Jack Guildroy, PPRC
Walter McNerney, PPRC
John C. Nelson, ProPAC
Jack K. Shelton, ProPAC

Meeting Dates

Subcommittee on Data Development and Research

April 20, 1988
June 22, 1988
December 14, 1988

Subcommittee on Hospital Productivity and Cost-Effectiveness

April 19, 1988
June 21, 1988
September 13, 1988
October 26, 1988
December 13, 1988
January 9-10, 1989
January 31, 1989

ProPAC-PPRC Liaison Subcommittee

January 9, 1989

Subcommittee on Diagnostic and Therapeutic Practices

April 19, 1988
June 21, 1988
September 13, 1988
October 26, 1988
December 13, 1988
January 10, 1989
January 31, 1989

Prospective Payment Assessment Commission

April 20, 1988
June 21-22, 1988
September 13-14, 1988
October 27, 1988
December 14, 1988
January 10, 1989
January 31-February 1, 1989

STATUTORY MANDATE OF THE COMMISSION

Congress established the Prospective Payment Assessment Commission ("PropAC") in Pub. L. 98-21 (the Social Security Amendments of 1983) on April 20, 1983. The current responsibilities of PropAC are set forth in Section 1862(a) and Section 1886 of the Social Security Act, amended through 1988. Further responsibilities are set forth in various conference reports. The passages of the relevant legislative sources follow.

Section 1886(d)(4)(C) and (D) of the Social Security Act

(C) The Secretary shall adjust the classifications and weighting factors established under subparagraphs (A) and (B), for discharges in fiscal year 1988 and at least annually thereafter, to reflect changes in treatment patterns, technology, and other factors which may change the relative use of hospital resources.

(D) The Commission (established under subsection (e)(2)) shall consult with and make recommendations to the Secretary with respect to the need for adjustments under subparagraph (C), based upon its evaluation of scientific evidence with respect to new practices, including the use of new technologies and treatment modalities. The Commission shall report to the Congress with respect to its evaluation of any adjustments made by the Secretary under subparagraph (C).

Section 1886(e)(2) through (6) of the Social Security Act

(2) The Director of the Congressional Office of Technology Assessment (hereinafter in this subsection referred to as the "Director" and the "Office," respectively) shall provide for appointment of a Prospective Payment Assessment Commission (hereinafter in this subsection referred to as the "Commission"), to be composed of independent experts appointed by the Director (without regard to the provisions of title 5, United States Code, governing appointments in the competitive service). In addition to carrying out its functions under subsection (d)(4)(D), the Commission shall review the applicable percentage increase factor described in subsection (b)(3)(B) and make recommendations to the Secretary on the appropriate

percentage change which should be effected for hospital inpatient discharges under subsections (b) and (d) for fiscal years beginning with fiscal year 1986. In making its recommendations, the Commission shall take into account changes in the hospital market-basket described in subsection (b)(3)(B), hospital productivity, technological and scientific advances, the quality of health care provided in hospitals (including the quality and skill level of professional nursing required to maintain quality care), and long-term cost-effectiveness in the provision of inpatient hospital services.

(3)(A) The Commission, not later than March 1, before the beginning of each fiscal year (beginning with fiscal year 1989), shall report its recommendations to the Secretary on an appropriate change factor which should be used for inpatient hospital services for discharges in that fiscal year.

(B) The Secretary, not later than April 1, 1987, for fiscal year 1988 and not later than March 1 before the beginning of each fiscal year (beginning with fiscal year 1989), shall report to the Congress the Secretary's initial estimate of the percentage change that the Secretary will recommend under paragraph (4) with respect to that fiscal year.

(4) Taking into consideration the recommendations of the Commission, the Secretary shall recommend for each fiscal year (beginning with fiscal year 1988) an appropriate change factor for inpatient hospital services for discharges in that year which will take into account amounts necessary for the efficient and effective delivery of medically appropriate and necessary care of high quality. The appropriate change factor may be different for all large urban subsection (d) hospitals, other urban subsection (d) hospitals, urban subsection (d) Puerto Rico hospitals, rural subsection (d) hospitals, and rural subsection (d) Puerto Rico hospitals, and all other hospitals and units not paid under subsection (d), and may vary among such other hospitals and units.

(5) The Secretary shall cause to have published in the Federal Register, not later than:

(A) May 1 before each fiscal year (beginning with fiscal year 1986), the Secretary's proposed recommendation under paragraph (4) for that fiscal year for public comment, and

(B) September 1 before such fiscal year after such consideration of public comment on the proposal as is feasible in the time available, the Secretary's final recommendation under such paragraph for that year.

The Secretary shall include in the publication referred to in subparagraph (A) for a fiscal year the report of the Commission's recommendations submitted under paragraph (3) for that fiscal year.

(6)(A) The Commission shall consist of 17 individuals. Members of the Commission shall first be appointed no later than April 1, 1984, for a term of three years, except that the Director may provide initially for such shorter terms as will insure that (on a continuing basis) the terms of no more than seven members expire in any one year.

(B) The membership of the Commission shall include individuals with national recognition for their expertise in health economics, hospital reimbursement, hospital financial management, and other related fields, who provide a mix of different professionals, broad geographic representation, and a balance between urban and rural representatives, including physicians and registered professional nurses, employers, third party payors, individuals skilled in the conduct and interpretation of biomedical, health services, and health economics research, and individuals having expertise in the research and development of technological and scientific advances in health care.

(C) Subject to such review as the Office deems necessary to assure the efficient administration of the Commission, the Commission may:

(i) employ and fix the compensation of an Executive Director (subject to the approval of the Director of the Office) and such other personnel (not to exceed 25) as may be necessary to carry out its duties (without regard to the provisions of title 5, United States Code, governing appointments in the competitive service);

(ii) seek such assistance and support as may be required in the performance of its duties from appropriate Federal departments and agencies;

(iii) enter into contracts or make other arrangements, as may be necessary for the conduct

of the work of the Commission (without regard to section 3709 of the Revised Statutes (41 U.S.C. 5));

(iv) make advance, progress, and other payments which relate to the work of the Commission;

(v) provide transportation and subsistence for persons serving without compensation; and

(vi) prescribe such rules and regulations as it deems necessary with respect to the internal organization and operation of the Commission.

Section 10(a)(1) of the Federal Advisory Committee Act shall not apply to any portion of a Commission meeting if the Commission, by majority vote, determines that such portion of such meeting should be closed.

(D) While serving on the business of the Commission (including travel-time), a member of the Commission shall be entitled to compensation at the per diem equivalent of the rate provided for level IV of the Executive Schedule under section 5315 of title 5, United States Code; and while so serving away from home and his regular place of business, a member may be allowed travel expenses, as authorized by the Chairman of the Commission. Physicians serving as personnel of the Commission may be provided a physician comparability allowance by the Commission in the same manner as Government physicians may be provided such an allowance by an agency under section 5948 of title 5, United States Code, and for such purpose subsection (i) of such section shall apply to the Commission in the same manner as it applies to the Tennessee Valley Authority.

(E) In order to identify medically appropriate patterns of health resources use in accordance with paragraph (2), the Commission shall collect and assess information on medical and surgical procedures and services, including information on regional variations of medical practice and lengths of hospitalization and on other patient-care data, giving special attention to treatment patterns for conditions which appear to involve excessively costly or inappropriate services not adding to the quality of care provided. In order to assess the safety, efficacy, and cost-effectiveness of new and existing medical and surgical procedures, the Commission

shall, in coordination to the extent possible with the Secretary, collect and assess factual information, giving special attention to the needs of updating existing diagnosis-related groups, establishing new diagnosis-related groups, and making recommendations on relative weighting factors for such groups to reflect appropriate differences in resource consumption in delivering safe, efficacious, and cost-effective care. In collecting and assessing information, the Commission shall:

(i) utilize existing information, both published and unpublished, where possible, collected and assessed either by its own staff or under other arrangements made in accordance with this paragraph;

(ii) carry out, award grants or contracts for, original research and experimentation, including clinical research, where existing information is inadequate for the development of useful and valid guidelines by the Commission; and

(iii) adopt procedures allowing any interested party to submit information with respect to medical and surgical procedures and services (including new practices, such as the use of new technologies and treatment modalities), which information the Commission shall consider in making reports and recommendations to the Secretary and Congress.

(F) The Commission shall have access to such relevant information and data as may be available from appropriate Federal agencies and shall assure that its activities, especially the conduct of original research and medical studies, are coordinated with the activities of Federal agencies.

(G)(i) The Office shall report annually to the Congress on the functioning and progress of the Commission and on the status of the assessment of medical procedures and services by the Commission.

(ii) The Office shall have unrestricted access to all deliberations, records, and data of the Commission, immediately upon its request.

(iii) In order to carry out its duties under this paragraph, the Office is authorized to expend reasonable and necessary funds as mutually agreed upon by the Office and the Commission. The

Office shall be reimbursed for such funds by the Commission from the appropriations made with respect to the Commission.

(H) The Commission shall be subject to periodic audit by the General Accounting Office.

(I)(i) There are authorized to be appropriated such sums as may be necessary to carry out the provision of this paragraph.

(ii) Eighty-five percent of such appropriation shall be payable from the Federal Hospital Insurance Trust Fund, and 15 percent of such appropriation shall be payable from the Federal Supplementary Medical Insurance Trust Fund.

(J) The Commission shall submit requests for appropriations in the same manner as the Office submits requests for appropriations, but amounts appropriated for the Commission shall be separate from amounts appropriated for the Office.

Section 1862(a) of the Social Security Act

(a) Notwithstanding any other provision of this title, no payment may be made under part A or part B for any expenses incurred for items or services:

(1)(A) which, except for items and services described in subparagraph (B), (C), or (D), are not reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member,

(B) in the case of items and services described in section 1861(s)(10), which are not reasonable and necessary for the prevention of illness,

(C) in the case of hospice care, which are not reasonable and necessary for the palliation or management of terminal illness,

(D) in the case of clinical care items and services provided with the concurrence of the Secretary and with respect to research and experimentation conducted by, or under contract with, the Prospective Payment Assessment Commission or the Secretary, which are not reasonable and necessary to carry out the purposes of section 1886(e)(6), . . .

Section 1135(d) of the Social Security Act

(1) The Secretary shall develop a fully prospective payment system for ambulatory surgical procedures performed on patients in hospitals on an outpatient basis.

(2) The system shall, to the extent practicable, provide for an inclusive payment rate for ambulatory surgical procedures, performed on patients in hospitals on an outpatient basis, which rate encompasses payment for facility services and all medical and other health services, other than physicians' services, commonly furnished in connection with such procedures.

(3) The system shall provide for appropriate payment rates with respect to such procedures. In establishing such rates, the Secretary shall consider whether a differential payment rate is appropriate for specialty hospitals.

(4) Such rates shall take into account at least the following considerations:

(A) The costs of hospitals providing ambulatory surgical procedures.

(B) The costs under this title for payment for such procedures performed in ambulatory surgical centers.

(C) The extent to which any differences in such costs are justifiable.

(5) The Secretary shall report to Congress—

(A) an interim report on the development of the system by April 1, 1988, and

(B) a final report on such system by April 1, 1989.

The report under subparagraph (B) shall include recommendations concerning the implementation of the payment system for ambulatory surgical procedures performed on or after October 1, 1989.

(6)(A) The Secretary shall develop a model system for the payment for outpatient hospital services other than ambulatory surgery.

(B) The Secretary shall submit a report to Congress on the model payment system under subparagraph (A) by January 1, 1991.

(7) The Secretary shall solicit the views of the Prospective Payment Assessment Commission in developing the systems under paragraphs (1) and (6), and shall include in the Secretary's reports under this subsection any views the Commission may submit with respect to such systems.

H.R. Rep. No. 911, 98th Cong., 2d Sess. 140 (1984)

(Report of the Committee on Appropriations,
Pub. L. 98-619)

The Committee believes that the role of the Commission is that of a highly knowledgeable independent panel to advise the executive and legislative branches on the Medicare reimbursement system. While this advice includes rate setting and technology assessment, the Committee believes that the primary role of the Commission lies in a broader evaluation of the impact of Public Law 98-21 on the American health care system. The Committee therefore directs that the Commission submit an annual report to the Congress which expresses its view on these issues.

Section 9114 of the Consolidated Omnibus Budget Reconciliation Act of 1985, Pub. L. 99-272

(a) **Disclosure of Information**—The Secretary of Health and Human Services shall make available to the Prospective Payment Assessment Commission, the Congressional Budget Office, the Comptroller General, and the Congressional Research Service the most current information on the payments being made under section 1886 of the Social Security Act to individual hospitals. Such information shall be made available in a manner that permits examination of the impact of such section on hospitals.

(b) **Confidentiality**—Information disclosed under subsection (a) shall be treated as confidential and shall not be subject to further disclosure in a manner that permits the identification of individual hospitals.

**H.R. Rep. 99-289, 99th Congress, 1st Sess.
156 (1985)**

(Report of the Committee on Appropriations,
Pub. L. 99-591)

The Commission is assigned a broad range of duties under the law, including advice on the annual update of the DRG payment levels, advice on restructuring individual DRG's based on new procedures or technologies and general advice on the impact of the new reimbursement system on the cost, quality and effectiveness of the Medicare system in particular and the American health care system in general. . . . The Committee expects the Commission to more formally organize its research program and to include in its FY 1988 budget request a formal research plan which reviews FY 1985 and 1986 work and lays out an agenda for FY 1987 and 1988. . . . The Committee encourages the Commission to implement procedures to assure a broad range of viewpoints and information.

**Section 4009(h)(2) of Pub. L. 100-203,
Omnibus Budget Reconciliation Act of 1987**

The Prospective Payment Assessment Commission shall evaluate the desirability of maintaining separate DRG prospective payment rates for hospitals located in large urban areas (as defined in section 1886(d)(2)(D) of the Social Security Act) and in other urban areas, and shall report to Congress on such evaluation not later than January 1, 1989.

**Section 4009(h)(3) of Pub. L. 100-203,
Omnibus Budget Reconciliation Act of 1987**

The Prospective Payment Assessment Commission shall perform an analysis to determine the feasibility and appropriateness of adjusting the non-wage-related portion of the adjusted standardized amounts under section 1886(d)(3) of the

Social Security Act based on area differences in hospitals' costs (other than wage-related costs) and input prices. The Commission shall report to the Congress on such analysis by not later than October 1, 1989.

**Section 203(c) (2) of Pub. L. 100-360
Medicare Catastrophic Coverage Act of 1989**

The Prospective Payment Assessment Commission shall conduct a study, and make recommendations not later than March 1, 1991, under section 1886(d) of the Social Security Act for inpatient hospital services to account for reduced costs to hospitals resulting from the amendments made by this section [coverage of home intravenous drug therapy services].

**Section 429(a) of Pub. L. 100-360
Medicare Catastrophic Coverage Act of 1989**

The Secretary of Health and Human Services shall provide for up to 5 demonstration projects, for up to 3 years each, to review the appropriateness of classifying chronic ventilator-dependent units in hospitals as rehabilitation units. Such projects shall be conducted in consultation with the Prospective Payment Assessment Commission.

**Section 8403(c) of Pub. L. 100-647
Technical and Miscellaneous Revenue Act of 1988**

The Prospective Payment Assessment Commission shall study and make a report to Congress within 9 months after the date of enactment of this Act on the appropriate payments for hospitals affected by subparagraphs (B) and (C) of Section 1886(d) (8) of the Social Security Act (as amended by subsection (a) of this section) and the appropriate treatment of the wage and wage-related costs of such hospitals in commuting area wage indices.

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
1	1	SURG	CRANIOTOMY AGE >17 EXCEPT FOR TRAUMA	3.4434	3.4873	1.3
2	1	SURG	CRANIOTOMY FOR TRAUMA AGE >17	3.8160	4.1406	8.5
3	1	SURG	CRANIOTOMY AGE 0-17	2.9183	2.9183	0.0
4	1	SURG	SPINAL PROCEDURES	2.5904	2.6837	3.6
5	1	SURG	EXTRACRANIAL VASCULAR PROCEDURES	1.5685	1.5585	-0.6
6	1	SURG	CARPAL TUNNEL RELEASE	0.4393	0.4496	2.3
7	1	SURG	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC WITH CC	2.5269	2.8433	12.5
8	1	SURG	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W/O CC	0.7367	0.7432	0.9
9	1	MED	SPINAL DISORDERS & INJURIES	1.2639	1.2857	1.7
10	1	MED	NERVOUS SYSTEM NEOPLASMS WITH CC	1.2123	1.2443	2.6
11	1	MED	NERVOUS SYSTEM NEOPLASMS W/O CC	0.7729	0.7852	1.6
12	1	MED	DEGENERATIVE NERVOUS SYSTEM DISORDERS	0.9459	0.9296	-1.7
13	1	MED	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA	0.9324	0.9281	-0.5
14	1	MED	SPECIFIC CEREBROVASCULAR DISORDERS EXCEPT TIA	1.2429	1.2348	-0.7
15	1	MED	TRANSIENT ISCHEMIC ATTACK & PRECEREBRAL OCCLUSIONS	0.6293	0.6333	0.6
16	1	MED	NONSPECIFIC CEREBROVASCULAR DISORDERS WITH CC	1.0384	1.0512	1.2
17	1	MED	NONSPECIFIC CEREBROVASCULAR DISORDERS W/O CC	0.6358	0.6302	-0.9
18	1	MED	CRANIAL & PERIPHERAL NERVE DISORDERS WITH CC	0.9557	0.9585	0.3
19	1	MED	CRANIAL & PERIPHERAL NERVE DISORDERS W/O CC	0.6158	0.6085	-1.2
20	1	MED	NERVOUS SYSTEM INFECTION EXCEPT VIRAL MENINGITIS	1.6220	1.7083	5.3
21	1	MED	VIRAL MENINGITIS	1.3613	1.3601	-0.1
22	1	MED	HYPERTENSIVE ENCEPHALOPATHY	0.7055	0.7025	-0.4
23	1	MED	NONTRAUMATIC STUPOR & COMA	0.9505	0.9441	-0.7
24	1	MED	SEIZURE & HEADACHE AGE >17 WITH CC	0.9228	0.9528	3.3
25	1	MED	SEIZURE & HEADACHE AGE >17 W/O CC	0.5386	0.5332	-1.0
26	1	MED	SEIZURE & HEADACHE AGE 0-17	0.5635	0.9116	61.8
27	1	MED	TRAUMATIC STUPOR & COMA, COMA >1 HR	1.4753	1.6526	12.0
28	1	MED	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE >17 WITH CC	1.1694	1.2170	4.1
29	1	MED	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE >17 W/O CC	0.5856	0.5937	1.4
30	1	MED	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE 0-17	0.3539	0.3539	0.0
31	1	MED	CONCUSSION AGE >17 WITH CC	0.6550	0.6667	1.8
32	1	MED	CONCUSSION AGE >17 W/O CC	0.4005	0.4063	1.4
33	1	MED	CONCUSSION AGE 0-17	0.2457	0.2457	0.0
34	1	MED	OTHER DISORDERS OF NERVOUS SYSTEM WITH CC	1.2038	1.2705	5.5
35	1	MED	OTHER DISORDERS OF NERVOUS SYSTEM W/O CC	0.6035	0.5770	-4.4

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
36	2	SURG	RETINAL PROCEDURES	0.6820	0.6571	-3.7
37	2	SURG	ORBITAL PROCEDURES	0.7104	0.7274	2.4
38	2	SURG	PRIMARY IRIS PROCEDURES	0.3779	0.3692	-2.3
39	2	SURG	LENS PROCEDURES WITH OR WITHOUT VITRECTOMY	0.5167	0.4722	-8.6
40	2	SURG	EXTRAOCULAR PROCEDURES EXCEPT ORBIT AGE >17	0.4675	0.4763	1.9
41	2	SURG	EXTRAOCULAR PROCEDURES EXCEPT ORBIT AGE 0-17	0.3657	0.3657	0.0
42	2	SURG	INTRAOCULAR PROCEDURES RETINA, IRIS & LENS	0.6600	0.6424	-2.7
43	2	MED	HYPHEMA	0.3727	0.3699	-0.8
44	2	MED	ACUTE MAJOR EYE INFECTIONS	0.6352	0.6346	-0.1
45	2	MED	NEUROLOGICAL EYE DISORDERS	0.5595	0.5532	-1.1
46	2	MED	OTHER DISORDERS OF THE EYE AGE >17 WITH CC	0.6195	0.6321	2.0
47	2	MED	OTHER DISORDERS OF THE EYE AGE >17 W/O CC	0.3611	0.3652	1.1
48	2	MED	OTHER DISORDERS OF THE EYE AGE 0-17	0.4018	0.4018	0.0
49	2	SURG	MAJOR HEAD & NECK PROCEDURES	2.8923	2.8418	-1.7
50	2	SURG	SIALOADENECTOMY	0.6681	0.6448	-3.5
51	3	SURG	SALIVARY GLAND PROCEDURES EXCEPT SIALLOADENECTOMY	0.5424	0.5708	5.2
52	3	SURG	CLEFT LIP & PALATE REPAIR	0.7033	0.8499	20.8
53	3	SURG	SINUS & MASTOID PROCEDURES AGE >17	0.6159	0.6172	0.2
54	3	SURG	SINUS & MASTOID PROCEDURES AGE 0-17	0.6889	0.6889	0.0
55	3	SURG	MISCELLANEOUS EAR, NOSE, MOUTH & THROAT PROCEDURES	0.4598	0.4613	0.3
56	3	SURG	RHINOPLASTY	0.4471	0.4684	4.8
57	3	SURG	T&A PROC, EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE >17	0.7907	0.9321	17.9
58	3	SURG	T&A PROC, EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE 0-17	0.3097	0.3097	0.0
59	3	SURG	TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE >17	0.3845	0.3901	1.5
60	3	SURG	TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE 0-17	0.2616	0.2616	0.0
61	3	SURG	MYRINGOTOMY W TUBE INSERTION AGE >17	0.5401	0.7994	48.0
62	3	SURG	MYRINGOTOMY W TUBE INSERTION AGE 0-17	0.3089	0.3089	0.0
63	3	SURG	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES	1.1538	1.1811	2.4
64	3	MED	EAR, NOSE, MOUTH & THROAT MALIGNANCY	1.0548	1.0883	3.2
65	3	MED	DYSFUNCTIONAL EUSTACHIAN TUBE	0.4600	0.4557	-0.9
66	3	MED	EPISTAXIS	0.4272	0.4394	2.9
67	3	MED	EPIGLOTTITIS	0.9964	1.0470	5.1
68	3	MED	OTITIS MEDIA & URI AGE > 17 WITH CC	0.7217	0.7806	8.2
69	3	MED	OTITIS MEDIA & URI AGE > 17 W/O CC	0.5366	0.5349	-0.3
70	3	MED	OTITIS MEDIA & URI AGE 0-17	0.5345	0.5853	9.5

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
71	3	MED	LARYNGOTRACHEITIS	0.6026	0.8933	48.2
72	3	MED	NASAL TRAUMA & DEFORMITY	0.4895	0.5256	7.4
73	3	MED	OTHER EAR, NOSE, MOUTH, & THROAT DIAGNOSES AGE >17	0.7404	0.7629	3.0
74	3	MED	OTHER EAR, NOSE, MOUTH, & THROAT DIAGNOSES AGE 0-17	0.3427	0.3427	0.0
75	4	SURG	MAJOR CHEST PROCEDURES	3.0258	3.0335	0.3
76	4	SURG	OTHER RESP SYSTEM O.R. PROCEDURES WITH CC	2.0885	2.4324	16.5
77	4	SURG	OTHER RESP SYSTEM O.R. PROCEDURES W/O CC	1.0970	1.0488	-4.4
78	4	MED	PULMONARY EMBOLISM	1.4817	1.4685	-0.9
79	4	MED	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE >17 WITH CC	2.0777	2.0375	-1.9
80	4	MED	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE >17 W/O CC	1.3341	1.2339	-7.5
81	4	MED	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE 0-17	1.1032	1.1032	0.0
82	4	MED	RESPIRATORY NEOPLASMS	1.1899	1.2367	3.9
83	4	MED	MAJOR CHEST TRAUMA WITH CC	0.9698	1.0107	4.2
84	4	MED	MAJOR CHEST TRAUMA W/O CC	0.5372	0.5214	-2.9
85	4	MED	PLEURAL EFFUSION WITH CC	1.1451	1.1663	1.9
86	4	MED	PLEURAL EFFUSION W/O CC	0.7720	0.7357	-4.7
87	4	MED	PULMONARY EDEMA & RESPIRATORY FAILURE	1.5691	1.5108	-3.7
88	4	MED	CHRONIC OBSTRUCTIVE PULMONARY DISEASE	1.1263	1.1210	-0.5
89	4	MED	SIMPLE PNEUMONIA & PLEURISY AGE >17 WITH CC	1.2862	1.2695	-1.3
90	4	MED	SIMPLE PNEUMONIA & PLEURISY AGE >17 W/O CC	0.8961	0.8268	-7.7
91	4	MED	SIMPLE PNEUMONIA & PLEURISY AGE 0-17	0.9448	0.7603	-19.5
92	4	MED	INTERSTITIAL LUNG DISEASE WITH CC	1.2821	1.3142	2.5
93	4	MED	INTERSTITIAL LUNG DISEASE W/O CC	0.8264	0.8364	1.2
94	4	MED	PNEUMOTHORAX WITH CC	1.3954	1.3972	0.1
95	4	MED	PNEUMOTHORAX W/O CC	0.7571	0.7104	-6.2
96	4	MED	BRONCHITIS & ASTHMA AGE >17 WITH CC	0.9804	1.0137	3.4
97	4	MED	BRONCHITIS & ASTHMA AGE >17 W/O CC	0.7151	0.7076	-1.0
98	4	MED	BRONCHITIS & ASTHMA AGE 0-17	0.5744	0.6356	10.7
99	4	MED	RESPIRATORY SIGNS & SYMPTOMS WITH CC	0.7803	0.7450	-4.5
100	4	MED	RESPIRATORY SIGNS & SYMPTOMS W/O CC	0.5238	0.5080	-3.0
101	4	MED	OTHER RESPIRATORY SYSTEM DIAGNOSES WITH CC	0.9585	0.9841	2.7
102	4	MED	OTHER RESPIRATORY SYSTEM DIAGNOSES W/O CC	0.6625	0.5818	-12.2
103	5	SURG	HEART TRANSPLANT	11.9225	14.7080	23.4
104	5	SURG	CARDIAC VALVE PROCEDURE W PUMP & W CARDIAC CATH	7.3424	7.5631	3.0
105	5	SURG	CARDIAC VALVE PROCEDURE W PUMP & W/O CARDIAC CATH	5.7811	5.9439	2.8

DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
106	5	SURG	CORONARY BYPASS W CARDIAC CATH	5.5415	5.5493	0.1
107	5	SURG	OTHER CARDIOTHORACIC OR VASCULAR PROCEDURES, W PUMP	4.2858	4.2102	-1.8
108	5	SURG	OTHER CARDIOTHORACIC PROCEDURES W/O PUMP	5.3703	5.5817	3.9
109	5	SURG	MAJOR RECONSTRUCTIVE VASCULAR PROC W/O PUMP WITH CC	3.9142	3.7756	-3.5
110	5	SURG	MAJOR RECONSTRUCTIVE VASCULAR PROC W/O PUMP W/O CC	3.6718	3.6677	-0.1
111	5	SURG	MAJOR RECONSTRUCTIVE VASCULAR PROC W/O PUMP W/O CC	2.2639	2.1617	-4.5
112	5	SURG	VASCULAR PROCEDURES EXCEPT MAJOR RECONSTRUCTION W/O PUMP	1.8911	1.9042	0.7
113	5	SURG	AMPUTATION FOR CIRC SYSTEM DISORDERS EXCEPT UPPER LIMB & TOE	2.4590	2.4673	0.3
114	5	SURG	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS	1.7040	1.7145	0.6
115	5	SURG	PERM CARDIAC PACEMAKER IMPLANT W AMI, HEART FAILURE, OR SHOCK	4.0516	3.9800	-1.8
116	5	SURG	PERM CARDIAC PACEMAKER IMPLANT W/O AMI, HEART FAILURE, OR SHOCK	2.7694	2.6632	-3.8
117	5	SURG	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT	1.2261	1.2223	-0.3
118	5	SURG	CARDIAC PACEMAKER DEVICE REPLACEMENT	1.7563	1.6529	-5.9
119	5	SURG	VEIN LIGATION & STRIPPING	0.8692	0.8264	-4.9
120	5	SURG	OTHER CIRCULATORY SYSTEM O.R. PROCEDURES	2.4776	2.7403	10.6
121	5	MED	CIRCULATORY DISORDERS W AMI & C.V. COMP, DISCH ALIVE	1.7162	1.6545	-3.6
122	5	MED	CIRCULATORY DISORDERS W AMI W/O C.V. COMP, DISCH ALIVE	1.2002	1.1455	-4.6
123	5	MED	CIRCULATORY DISORDERS W AMI, EXPIRED	1.3979	1.4232	1.8
124	5	MED	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH & COMPLEX DIAG	1.1806	1.1854	0.4
125	5	MED	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH W/O COMPLEX DIAG	0.6884	0.6823	-0.9
126	5	MED	ACUTE & SUBACUTE ENDOCARDITIS	3.0575	3.0532	-0.1
127	5	MED	HEART FAILURE & SHOCK	1.0222	1.0365	1.4
128	5	MED	DEEP VEIN THROMBOPHLEBITIS	0.8513	0.8359	-1.8
129	5	MED	CARDIAC ARREST, UNEXPLAINED	1.5715	1.5132	-3.7
130	5	MED	PERIPHERAL VASCULAR DISORDERS WITH CC	0.8776	0.8896	1.4
131	5	MED	PERIPHERAL VASCULAR DISORDERS W/O CC	0.5862	0.5886	0.4
132	5	MED	ATHEROSCLEROSIS WITH CC	0.7976	0.7738	-3.0
133	5	MED	ATHEROSCLEROSIS W/O CC	0.5997	0.5624	-6.2
134	5	MED	HYPERTENSION	0.6088	0.6026	-1.0
135	5	MED	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE >17 WITH CC	0.9221	0.8927	-3.2
136	5	MED	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE >17 W/O CC	0.6103	0.5713	-6.4
137	5	MED	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE 0-17	0.6315	0.6315	0.0
138	5	MED	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS WITH CC	0.8535	0.8488	-0.6
139	5	MED	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W/O CC	0.5912	0.5742	-2.9
140	5	MED	ANGINA PECTORIS	0.6689	0.6559	-1.9

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
141	5	MED	SYNCOPE & COLLAPSE WITH CC	0.6882	1.2	
142	5	MED	SYNCOPE & COLLAPSE W/O CC	0.5203	-0.8	
143	5	MED	CHEST PAIN	0.5244	-0.8	
144	5	MED	OTHER CIRCULATORY SYSTEM DIAGNOSES WITH CC	0.5500	-1.9	
145	5	MED	OTHER CIRCULATORY SYSTEM DIAGNOSES W/O CC	1.1449	0.3	
146	6	SURG	RECTAL RESECTION WITH CC	0.6689	-3.8	
147	6	SURG	RECTAL RESECTION W/O CC	0.6434	-12.6	
148	6	SURG	MAJOR SMALL & LARGE BOWEL PROCEDURES WITH CC	2.7773	-19.2	
149	6	SURG	MAJOR SMALL & LARGE BOWEL PROCEDURES W/O CC	2.1344	1.8664	
150	6	SURG	PERITONEAL ADHESIOLYSIS WITH CC	3.2376	3.2745	1.1
151	6	SURG	PERITONEAL ADHESIOLYSIS W/O CC	3.4379	2.7756	-19.2
152	6	SURG	MINOR SMALL & LARGE BOWEL PROCEDURES WITH CC	2.6797	2.7173	1.4
153	6	SURG	MINOR SMALL & LARGE BOWEL PROCEDURES W/O CC	1.4885	1.4527	-2.4
154	6	SURG	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE >17 WITH CC	1.5988	1.4807	-7.4
155	6	SURG	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE >17 W/O CC	1.0566	1.0636	0.7
156	6	SURG	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE 0-17	3.7961	3.8125	0.4
157	6	SURG	ANAL & STOMAL PROCEDURES WITH CC	1.8195	1.7209	-5.4
158	6	SURG	ANAL & STOMAL PROCEDURES W/O CC	0.8382	0.8382	0.0
159	6	SURG	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL AGE >17 WITH CC	0.9324	0.9779	4.9
160	6	SURG	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL AGE >17 W/O CC	0.5449	0.5287	-3.0
161	6	SURG	INGUINAL & FEMORAL HERNIA PROCEDURES AGE >17 WITH CC	1.1454	1.1103	-3.1
162	6	SURG	INGUINAL & FEMORAL HERNIA PROCEDURES AGE >17 W/O CC	0.6810	0.6585	-3.3
163	6	SURG	HERNIA PROCEDURES AGE 0-17	0.7541	0.7331	-2.8
164	6	SURG	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG WITH CC	0.5004	0.4714	-5.8
165	6	SURG	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W/O CC	2.4014	2.4065	0.2
166	6	SURG	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG WITH CC	1.4675	1.4236	-3.0
167	6	SURG	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAL W/O CC	1.4954	1.4556	-2.7
168	6	SURG	MOUTH PROCEDURES WITH CC	0.8651	0.8008	-7.4
169	6	SURG	MOUTH PROCEDURES W/O CC	1.4067	0.9713	-31.0
170	6	SURG	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES WITH CC	0.6689	0.5320	-20.5
171	6	SURG	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W/O CC	2.7316	2.7677	1.3
172	6	MED	DIGESTIVE MALIGNANCY WITH CC	1.4018	1.3797	-1.6
173	6	MED	DIGESTIVE MALIGNANCY W/O CC	1.1861	1.2026	1.4
174	6	MED	G.I. HEMORRHAGE WITH CC	0.7049	0.7004	-0.6
175	6	MED	G.I. HEMORRHAGE W/O CC	0.9878	0.9816	-0.6

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

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DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
176	6	MED	COMPLICATED PEPTIC ULCER	0.9964	0.9927	-0.4
177	6	MED	UNCOMPLICATED PEPTIC ULCER WITH CC	0.7834	0.7733	-1.3
178	6	MED	UNCOMPLICATED PEPTIC ULCER W/O CC	0.5838	0.5684	-2.6
179	6	MED	INFLAMMATORY BOWEL DISEASE	1.0416	1.0929	4.9
180	6	MED	G.I. OBSTRUCTION WITH CC	0.9150	0.9165	0.2
181	6	MED	G.I. OBSTRUCTION W/O CC	0.5415	0.5340	-1.4
182	6	MED	ESOPHAGITIS, GASTROENTER & MISC DIGEST DISORDERS AGE >17 WITH CC	0.7224	0.7386	2.2
183	6	MED	ESOPHAGITIS, GASTROENTER & MISC DIGEST DISORDERS AGE >17 W/O CC	0.5252	0.5284	0.6
184	6	MED	ESOPHAGITIS, GASTROENTER & MISC DIGEST DISORDERS AGE 0-17	0.4223	0.6446	52.6
185	6	MED	DENTAL & ORAL DIS EXCEPT EXTRACTIONS & RESTORATIONS, AGE >17	0.7530	0.7488	-0.6
186	6	MED	DENTAL & ORAL DIS EXCEPT EXTRACTIONS & RESTORATIONS, AGE 0-17	0.4112	0.4112	0.0
187	6	MED	DENTAL EXTRACTIONS & RESTORATIONS	0.4540	0.4579	0.9
188	6	MED	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE >17 WITH CC	0.9144	0.9575	4.7
189	6	MED	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE >17 W/O CC	0.4966	0.4872	-1.9
190	6	MED	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE 0-17	0.8147	0.7933	-2.6
191	7	SURG	PANCREAS, LIVER & SHUNT PROCEDURES W CC	4.6881	5.3135	13.3
192	7	SURG	PANCREAS, LIVER & SHUNT PROCEDURES W/O CC	3.8625	2.4801	-35.8
193	7	SURG	BILIARY TRACT PROC W CC EXCEPT ONLY TOT CHOLECYST W OR W/O C.D.E.	3.0252	3.0566	1.0
194	7	SURG	BILIARY TRACT PROC W/O CC EXCEPT ONLY TOT CHOLECYST W OR W/O C.D.E.	1.8505	1.8809	1.6
195	7	SURG	TOTAL CHOLECYSTECTOMY W C.D.E. WITH CC	2.3854	2.3363	-2.1
196	7	SURG	TOTAL CHOLECYSTECTOMY W C.D.E. W/O CC	1.6898	1.5628	-7.5
197	7	SURG	TOTAL CHOLECYSTECTOMY W/O C.D.E. WITH CC	1.8768	1.7757	-5.4
198	7	SURG	TOTAL CHOLECYSTECTOMY W/O C.D.E. W/O CC	1.1152	1.0456	-6.2
199	7	SURG	HEPATOBILIARY DIAGNOSTIC PROCEDURE FOR MALIGNANCY	2.2693	2.2894	0.9
200	7	SURG	HEPATOBILIARY DIAGNOSTIC PROCEDURE FOR NON-MALIGNANCY	2.4731	2.6844	8.5
201	7	SURG	OTHER HEPATOBILIARY OR PANCREAS O.R. PROCEDURES	2.3933	2.4875	3.9
202	7	MED	CIRRHOSIS & ALCOHOLIC HEPATITIS	1.2075	1.2400	2.7
203	7	MED	MALIGNANCY OF HEPATOBILIARY SYSTEM OR PANCREAS	1.0422	1.0904	4.6
204	7	MED	DISORDERS OF PANCREAS EXCEPT MALIGNANCY	1.0266	1.0266	0.0
205	7	MED	DISORDERS OF LIVER EXCEPT MALIG, CIRR, ALC HEPA WITH CC	1.2132	1.2386	2.1
206	7	MED	DISORDERS OF LIVER EXCEPT MALIG, CIRR, ALC HEPA W/O CC	0.6806	0.6406	-5.9
207	7	MED	DISORDERS OF THE BILIARY TRACT WITH CC	0.9243	0.9574	3.6
208	7	MED	DISORDERS OF THE BILIARY TRACT W/O CC	0.5816	0.5798	-0.3
209	8	SURG	MAJOR JOINT & LIMB REATTACHMENT PROCEDURES	2.4145	2.3829	-1.3
210	8	SURG	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE >17 WITH CC	2.1776	2.1237	-2.5

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

DRG	MDC	TYPE	TITLE	FY88 WEIGHT	FY89 WEIGHT	PERCENT CHANGE
211	8	SURG	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE >17 W/O CC	1.6104	1.5418	-4.3
212	8	SURG	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE 0-17	1.3764	1.4611	6.2
213	8	SURG	AMPUTATION FOR MUSCULOSKELETAL SYSTEM & CONN TISSUE DISORDERS	1.8460	1.7667	-4.3
214	8	SURG	BACK & NECK PROCEDURES WITH CC	2.1385	2.0618	-3.6
215	8	SURG	BACK & NECK PROCEDURES W/O CC	1.3768	1.3053	-5.2
216	8	SURG	BIOPSYIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	1.5973	1.6331	2.2
217	8	SURG	WND DEBRID & SKIN GRAFT EXCEPT HAND, FOR MUSCOSKELE & CONN TISS DIS	2.8155	2.9985	6.5
218	8	SURG	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR AGE >17 WITH CC	1.6224	1.5637	-3.6
219	8	SURG	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR AGE >17 W/O CC	1.0186	0.9848	-3.3
220	8	SURG	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR AGE 0-17	0.9242	0.9242	0.0
221	8	SURG	KNEE PROCEDURES WITH CC	1.4523	1.5164	4.4
222	8	SURG	KNEE PROCEDURES W/O CC	0.7995	0.8259	3.3
223	8	SURG	MAJOR SHOULDER/ELBOW PROC, OR OTHER UPPER EXTREMITY PROC WITH CC SHOULDER, ELBOW OR FOREARM PROC, EXC MAJOR JOINT PROC W/O CC	1.1202	1.0621	-5.2
224	8	SURG	FOOT PROCEDURES	0.6588	0.6378	-3.2
225	8	SURG	SOFT TISSUE PROCEDURES WITH CC	0.6775	0.6972	2.9
226	8	SURG	SOFT TISSUE PROCEDURES W/O CC	1.3570	1.3916	2.5
227	8	SURG	MAJOR THUMB OR JOINT PROC, OR OTHER HAND OR WRIST PROC WITH CC	0.6878	0.6656	-3.2
228	8	SURG	HAND OR WRIST PROC EXCEPT MAJOR JOINT PROC W/O CC	0.8201	0.8098	-1.3
229	8	SURG	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES OF HIP & FEMUR	0.5202	0.5153	-0.9
230	8	SURG	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES EXCEPT HIP & FEMURE	0.8868	0.8502	-4.1
231	8	SURG	ARTHROSCOPY	0.8346	0.8773	5.1
232	8	SURG	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC WITH CC	0.8603	0.9593	11.5
233	8	SURG	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W/O CC	1.7267	1.6745	-3.0
234	8	SURG	FRACTURES OF FEMUR	0.9057	0.8595	-5.1
235	8	MED	FRACTURES OF HIP & PELVIS	1.2060	1.1956	-0.9
236	8	MED	SPRAINS, STRAINS & DISLOCATIONS OF HIP, PELVIS & THIGH	0.9036	0.8869	-1.8
237	8	MED	OSTEOMYELITIS	0.5959	0.5724	-3.9
238	8	MED	PATHOLOGICAL FRACTURES & MUSCULOSKELETAL & CONN TISS MALIGNANCY	1.6579	1.6503	-0.5
239	8	MED	CONNECTIVE TISSUE DISORDERS WITH CC	0.9550	0.9787	2.5
240	8	MED	CONNECTIVE TISSUE DISORDERS W/O CC	1.0932	1.1186	2.3
241	8	MED	SEPTIC ARTHRITIS	0.6644	0.6354	-4.4
242	8	MED	MEDICAL BACK PROBLEMS	1.4100	1.3247	-6.0
243	8	MED	BONE DISEASES & SPECIFIC ARTHROPATHIES WITH CC	0.6694	0.6560	-2.0
244	8	MED	BONE DISEASES & SPECIFIC ARTHROPATHIES W/O CC	0.7305	0.7181	-1.7
245	8	MED		0.5345	0.5214	-2.5

DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
246	8	MED	NON-SPECIFIC ARTHROPATHIES	0.5769	0.5672	-1.7
247	8	MED	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE	0.5407	0.5365	-0.8
248	8	MED	TENDONITIS, MYOSITIS & BURSITIS	0.6097	0.6176	1.3
249	8	MED	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	0.6830	0.6678	-2.2
250	8	MED	FX, SPRN, STRN & DISL OF FOREARM, HAND, FOOT AGE >17 WITH CC	0.6721	0.6679	-0.6
251	8	MED	FX, SPRN, STRN & DISL OF FOREARM, HAND, FOOT AGE >17 W/O CC	0.4148	0.4203	1.3
252	8	MED	FX, SPRN, STRN & DISL OF FOREARM, HAND, FOOT AGE 0-17	0.3496	0.3496	0.0
253	8	MED	FX, SPRN, STRN & DISL OF UPARM, LOWLEG EX FOOT AGE >17 WITH CC	0.7909	0.7831	-1.0
254	8	MED	FX, SPRN, STRN & DISL OF UPARM, LOWLEG EX FOOT AGE >17 W/O CC	0.4557	0.4426	-2.9
255	8	MED	FX, SPRN, STRN & DISL OF UPARM, LOWLEG EX FOOT AGE 0-17	0.4638	0.4638	0.0
256	8	MED	OTHER MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE DIAGNOSES	0.6585	0.6419	-2.5
257	9	SURG	TOTAL MASTECTOMY FOR MALIGNANCY WITH CC	1.0448	0.9893	-5.3
258	9	SURG	TOTAL MASTECTOMY FOR MALIGNANCY W/O CC	0.8462	0.7915	-6.5
259	9	SURG	SUBTOTAL MASTECTOMY FOR MALIGNANCY WITH CC	1.0046	0.9873	-1.7
260	9	SURG	SUBTOTAL MASTECTOMY FOR MALIGNANCY W/O CC	0.6010	0.6023	0.2
261	9	SURG	BREAST PROC FOR NON-MALIGNANCY EXCEPT BIOPSY & LOCAL EXCISION	0.6204	0.6377	2.8
262	9	SURG	BREAST BIOPSY & LOCAL EXCISION FOR NON-MALIGNANCY	0.4312	0.4375	1.5
263	9	SURG	SKIN GRAFT &/OR DEBRID FOR SKIN ULCER OR CELLULITIS WITH CC	2.5967	2.7018	4.0
264	9	SURG	SKIN GRAFT &/OR DEBRID FOR SKIN ULCER OR CELLULITIS W/O CC	1.6179	1.5881	-1.8
265	9	SURG	SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W CC	1.3909	1.4303	2.8
266	9	SURG	SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W/O	0.6865	0.6895	0.4
267	9	SURG	PERIANAL & PILONIDAL PROCEDURES	0.6248	0.6068	-2.9
268	9	SURG	SKIN, SUBCUTANEOUS TISSUE & BREAST PLASTIC PROCEDURES	0.5934	0.6173	4.0
269	9	SURG	OTHER SKIN, SUBCUT TISS & BREAST PROC WITH CC	1.5177	1.6854	11.0
270	9	SURG	OTHER SKIN, SUBCUT TISS & BREAST PROC W/O CC	0.6834	0.6966	1.9
271	9	MED	SKIN ULCERS	1.2017	1.2174	1.3
272	9	MED	MAJOR SKIN DISORDERS WITH CC	1.0375	1.0366	-0.1
273	9	MED	MAJOR SKIN DISORDERS W/O CC	0.7247	0.7079	-2.3
274	9	MED	MALIGNANT BREAST DISORDERS WITH CC	1.0494	1.0508	0.1
275	9	MED	MALIGNANT BREAST DISORDERS W/O CC	0.6395	0.5735	-10.3
276	9	MED	NON-MALIGNANT BREAST DISORDERS	0.5245	0.5320	1.4
277	9	MED	CELLULITIS AGE >17 WITH CC	0.9695	0.9624	-0.7
278	9	MED	CELLULITIS AGE >17 W/O CC	0.7063	0.6829	-3.3
279	9	MED	CELLULITIS AGE 0-17	0.7367	0.7367	0.0
280	9	MED	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST AGE >17 WITH CC	0.6197	0.6403	3.3

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
281	9	MED	TRAUMA TO THE SKIN SUBCUT TISS & BREAST AGE >17 W/O CC	0.4306	0.4249	-1.3
282	9	MED	TRAUMA TO THE SKIN SUBCUT TISS & BREAST AGE 0-17	0.3424	0.3424	0.0
283	9	MED	MINOR SKIN DISORDERS WITH CC	0.7682	0.7760	1.0
284	9	MED	MINOR SKIN DISORDERS W/O CC	0.4795	0.4839	0.9
285	10	SURG	AMPUTAT OF LOWER LIMB FOR ENDOC, NUTRIT & METABOL DISORDERS	2.9919	3.0283	1.2
286	10	SURG	ADRENAL & PITUITARY PROCEDURES	2.7063	2.5944	-4.1
287	10	SURG	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METABOL DISORDERS	2.2274	2.2201	-0.3
288	10	SURG	O.R. PROCEDURES FOR OBESITY	2.0018	2.0873	4.3
289	10	SURG	PARATHYROID PROCEDURES	1.1470	1.0952	-4.5
290	10	SURG	THYROID PROCEDURES	0.8428	0.8046	-4.5
291	10	SURG	THYROGLOSSAL PROCEDURES	0.4991	0.5103	2.2
292	10	SURG	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC WITH CC	2.6027	2.7120	4.2
293	10	SURG	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W/O CC	1.1698	1.1954	2.2
294	10	MED	DIABETES AGE >35	0.7493	0.7587	1.3
295	10	MED	DIABETES AGE 0-35	0.7228	0.7713	6.7
296	10	MED	NUTRITIONAL & MISC METABOLIC DISORDERS AGE >17 WITH CC	0.9259	0.9396	1.5
297	10	MED	NUTRITIONAL & MISC METABOLIC DISORDERS AGE >17 W/O CC	0.5791	0.5728	-1.1
298	10	MED	NUTRITIONAL & MISC METABOLIC DISORDERS AGE >17 W/O CC	0.7065	0.6434	-8.9
299	10	MED	INBORN ERRORS OF METABOLISM	0.8271	0.8451	2.2
300	10	MED	ENDOCRINE DISORDERS WITH CC	1.0862	1.1179	2.9
301	10	MED	ENDOCRINE DISORDERS W/O CC	0.6758	0.6420	-5.0
302	11	SURG	KIDNEY TRANSPLANT	3.8463	3.7012	-3.8
303	11	SURG	KIDNEY, URETER & MAJOR BLADDER PROCEDURES FOR NEOPLASM	2.7747	2.7491	-0.9
304	11	SURG	KIDNEY, URETER & MAJOR BLADDER PROC FOR NON-NEOPL WITH CC	2.3651	2.4603	4.0
305	11	SURG	KIDNEY, URETER & MAJOR BLADDER PROC FOR NON-NEOPL W/O CC	1.3665	1.3334	-2.4
306	11	SURG	PROSTATECTOMY WITH CC	1.4376	1.4321	-0.4
307	11	SURG	PROSTATECTOMY W/O CC	0.9121	0.8634	-5.3
308	11	SURG	MINOR BLADDER PROCEDURES WITH CC	1.5354	1.5480	0.8
309	11	SURG	MINOR BLADDER PROCEDURES W/O CC	0.8620	0.8343	-3.2
310	11	SURG	TRANSURETHRAL PROCEDURES WITH CC	0.9026	0.9112	1.0
311	11	SURG	TRANSURETHRAL PROCEDURES W/O CC	0.5681	0.5434	-4.3
312	11	SURG	URETHRAL PROCEDURES, AGE >17 WITH CC	0.8246	0.8282	0.4
313	11	SURG	URETHRAL PROCEDURES, AGE >17 W/O CC	0.5286	0.5054	-4.4
314	11	SURG	URETHRAL PROCEDURES, AGE 0-17	0.4323	0.4323	0.0
315	11	SURG	OTHER KIDNEY & URINARY TRACT O.R. PROCEDURES	2.3635	2.4142	2.1

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

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DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
316	11	MED	RENAL FAILURE	1.2840	1.2811	-0.2
317	11	MED	ADMIT FOR RENAL DIALYSIS	0.3542	0.3494	-1.4
318	11	MED	KIDNEY & URINARY TRACT NEOPLASMS WITH CC	1.0441	1.0683	2.3
319	11	MED	KIDNEY & URINARY TRACT NEOPLASMS W/O CC	0.5777	0.5777	0.0
320	11	MED	KIDNEY & URINARY TRACT INFECTIONS AGE >17 WITH CC	1.0230	1.0427	1.9
321	11	MED	KIDNEY & URINARY TRACT INFECTIONS AGE >17 W/O CC	0.7316	0.7247	-0.9
322	11	MED	KIDNEY & URINARY TRACT INFECTIONS AGE 0-17	0.6829	0.7487	9.6
323	11	MED	URINARY STONES WITH CC &/OR ESW LITHOTRIPSY	0.7915	0.7020	12.7
324	11	MED	URINARY STONE W/O CC	0.5139	0.4034	-21.5
325	11	MED	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE >17 WITH CC	0.6789	0.6833	0.6
326	11	MED	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE >17 W/O CC	0.4553	0.4357	-4.3
327	11	MED	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE 0-17	0.5511	0.5511	0.0
328	11	MED	URETHRAL STRicture AGE >17 WITH CC	0.6266	0.6200	-1.1
329	11	MED	URETHRAL STRicture AGE >17 W/O CC	0.4431	0.4227	-4.6
330	11	MED	URETHRAL STRicture AGE 0-17	0.2788	0.2788	0.0
331	11	MED	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >17 WITH CC	0.9050	0.9143	1.0
332	11	MED	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >17 W/O CC	0.5913	0.5636	-4.7
333	11	MED	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE 0-17	0.6887	0.6645	-3.5
334	12	SURG	MAJOR MALE PELVIC PROCEDURES WITH CC	1.9237	1.8513	-3.8
335	12	SURG	MAJOR MALE PELVIC PROCEDURES W/O CC	1.4080	1.3617	-3.3
336	12	SURG	TRANSURETHRAL PROSTATECTOMY WITH CC	1.0774	1.0162	-5.7
337	12	SURG	TRANSURETHRAL PROSTATECTOMY W/O CC	0.7505	0.6950	-7.4
338	12	SURG	TESTES PROCEDURES, FOR MALIGNANCY	0.7865	0.7524	-4.3
339	12	SURG	TESTES PROCEDURES, NON-MALIGNANCY AGE >17	0.5930	0.5867	-1.1
340	12	SURG	TESTES PROCEDURES, NON-MALIGNANCY AGE 0-17	0.4335	0.4335	0.0
341	12	SURG	PENIS PROCEDURES	1.0294	0.9828	-4.5
342	12	SURG	CIRCUMCISION AGE >17	0.4494	0.4489	-0.1
343	12	SURG	CIRCUMCISION AGE 0-17	0.3788	0.3788	0.0
344	12	SURG	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROCEDURES FOR MALIGNANCY	1.1302	1.0815	-4.3
345	12	SURG	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXCEPT FOR MALIGNANCY	0.8284	0.7907	-4.6
346	12	MED	MALIGNANCY, MALE REPRODUCTIVE SYSTEM WITH CC	0.9360	0.9178	-1.9
347	12	MED	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W/O CC	0.5091	0.4833	-5.1
348	12	MED	BENIGN PROSTATIC HYPERTROPHY WITH CC	0.6588	0.6717	2.0
349	12	MED	BENIGN PROSTATIC HYPERTROPHY W/O CC	0.4059	0.3870	-4.7
350	12	MED	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM	0.6734	0.6780	0.7

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

DRG	MDC	Type	Title	FY88 WEIGHT	FY89 WEIGHT	PERCENT CHANGE
351	12	MED	STERILIZATION, MALE	0.3333	0.3333	0.0
352	12	MED	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES	0.4886	0.5360	9.7
353	13	SURG	PELVIC EVISCERATION, RADICAL HYSTERECTOMY & RADICAL VULVECTOMY	2.2997	2.2704	-1.3
354	13	SURG	UTERINE, ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIGN WITH CC	1.5482	1.4985	-3.2
355	13	SURG	UTERINE, ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIGN W/O CC	0.9929	0.9453	-4.8
356	13	SURG	FEMALE REPRODUCTIVE SYSTEM RECONSTRUCTIVE PROCEDURES	0.7983	0.7596	-4.8
357	13	SURG	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGN	2.1591	2.2107	2.4
358	13	SURG	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY WITH CC	1.2941	1.2466	-3.7
359	13	SURG	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W/O CC	0.9025	0.8525	-5.5
360	13	SURG	VAGINA, CERVIX & VULVA PROCEDURES	0.6957	0.7439	6.9
361	13	SURG	LAPAROSCOPY & INCISIONAL TUBAL INTERRUPTION	0.6442	0.7185	11.5
362	13	SURG	ENDOSCOPIC TUBAL INTERRUPTION	0.4095	0.3701	-9.6
363	13	SURG	D&C, CONIZATION & RADIO-IMPLANT, FOR MALIGNANCY	0.6597	0.6828	3.5
364	13	SURG	D&C, CONIZATION EXCEPT FOR MALIGNANCY	0.4262	0.4411	3.5
365	13	SURG	OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES	1.9060	1.9412	1.8
366	13	MED	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM WITH CC	1.0916	1.1233	2.9
367	13	MED	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W/O CC	0.5481	0.5110	-6.8
368	13	MED	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM	0.8308	0.8683	4.5
369	13	MED	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM	0.4920	0.5058	2.8
370	14	SURG	CESAREAN SECTION WITH CC	1.0303	0.9456	-8.2
371	14	SURG	CESAREAN SECTION W/O CC	0.7164	0.7099	-0.9
372	14	MED	VAGINAL DELIVERY W COMPLICATING DIAGNOSES	0.4927	0.4442	-9.8
373	14	MED	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES	0.3212	0.3099	-3.5
374	14	SURG	VAGINAL DELIVERY W STERILIZATION &/OR D&C	0.5641	0.5542	-1.8
375	14	SURG	VAGINAL DELIVERY W O.R. PROC EXCEPT STERIL &/OR D&C	0.6817	0.6817	0.0
376	14	MED	POSTPARTUM & POST ABORTION DIAGNOSES W/O O.R. PROCEDURE	0.3520	0.3887	10.4
377	14	SURG	POSTPARTUM & POST ABORTION DIAGNOSES W O.R. PROCEDURE	0.9882	0.6574	-33.5
378	14	MED	ECTOPIC PREGNANCY	0.7787	0.7938	1.9
379	14	MED	THREATENED ABORTION	0.2843	0.2956	4.0
380	14	MED	ABORTION W/O D&C	0.3124	0.2531	-19.0
381	14	MED	ABORTION W D&C, ASPIRATION CURETTAGE OR HYSTEROTOMY	0.3694	0.3872	4.8
382	14	MED	FALSE LABOR	0.1309	0.1242	-5.1
383	14	MED	OTHER ANTEPARTUM DIAGNOSES W MEDICAL COMPLICATIONS	0.3964	0.4416	11.4
384	14	MED	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS	0.3512	0.3200	-8.9
385	15		NEONATES, DIED OR TRANSFERRED TO ANOTHER ACUTE CARE FACILITY	1.2232	1.2232	0.0

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

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DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
386	15		EXTREME IMMATURITY OR RESPIRATORY DISTRESS SYNDROME, NEONATE	3.6480	3.6480	0.0
387	15		PREMATURITY W MAJOR PROBLEMS	1.8267	1.8267	0.0
388	15		PREMATURITY W/O MAJOR PROBLEMS	1.1571	1.1571	0.0
389	15		FULL TERM NEONATE W MAJOR PROBLEMS	1.4127	1.7896	26.7
390	15		NEONATE W OTHER SIGNIFICANT PROBLEMS	0.9416	1.1117	18.1
391	15		NORMAL NEWBORN	0.2218	0.2218	0.0
392	16	SURG	SPLENECTOMY AGE >17	3.5252	3.6972	4.9
393	16	SURG	SPLENECTOMY AGE 0-17	1.5206	1.5206	0.0
394	16	SURG	OTHER O.R. PROCEDURES OF THE BLOOD AND BLOOD FORMING ORGANS	1.2250	1.4618	19.3
395	16	MED	RED BLOOD CELL DISORDERS AGE >17	0.7264	0.7427	2.2
396	16	MED	RED BLOOD CELL DISORDERS AGE 0-17	0.3441	0.4539	31.9
397	16	MED	COAGULATION DISORDERS	1.0145	1.0426	2.8
398	16	MED	RETICULOENDOTHELIAL & IMMUNITY DISORDERS WITH CC	1.2115	1.2472	2.9
399	16	MED	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE	0.6830	0.6899	1.0
400	17	SURG	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC WITH CC	2.6900	2.7513	2.3
401	17	SURG	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W/O CC	2.0871	2.1688	3.9
402	17	SURG	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W/O CC	0.9252	0.9001	-2.7
403	17	MED	LYMPHOMA & NON-ACUTE LEUKEMIA WITH CC	1.5222	1.5824	4.0
404	17	MED	LYMPHOMA & NON-ACUTE LEUKEMIA W/O CC	0.8085	0.8024	-0.8
405	17	MED	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE AGE 0-17	1.0407	1.0407	0.0
406	17	SURG	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC WITH CC	2.7146	2.7843	2.6
407	17	SURG	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W/O CC	1.4499	1.4537	0.3
408	17	SURG	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R. PROC	0.8955	0.9274	3.6
409	17	MED	RADIOTHERAPY	1.0802	1.0473	-3.0
410	17	MED	CHEMOTHERAPY	0.4742	0.4811	1.5
411	17	MED	HISTORY OF MALIGNANCY W/O ENDOSCOPY	0.4919	0.4733	-3.8
412	17	MED	HISTORY OF MALIGNANCY W ENDOSCOPY	0.3954	0.4334	9.6
413	17	MED	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG WITH CC	1.2385	1.2412	0.2
414	17	MED	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W/O CC	0.8128	0.7876	-3.1
415	18	SURG	O.R. PROCEDURE FOR INFECTIOUS & PARASITIC DISEASES	3.5067	3.5592	2.6
416	18	MED	SEPTECEMIA AGE >17	1.5894	1.5896	0.0
417	18	MED	SEPTECEMIA AGE 0-17	0.9346	1.0354	10.8
418	18	MED	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS	0.9743	1.0188	4.6
419	18	MED	FEVER OF UNKNOWN ORIGIN AGE >17 WITH CC	0.9778	0.9654	-1.3
420	18	MED	FEVER OF UNKNOWN ORIGIN AGE >17 W/O CC	0.6949	0.6760	-2.7

Appendix D. Change in DRG Relative Weights from Fiscal Year 1988 to Fiscal Year 1989.

DRG	MDC	Type	Title	FY88 Weight	FY89 Weight	Percent Change
421	18	MED	VIRAL ILLNESS AGE >17	0.6255	0.6529	4.4
422	18	MED	VIRAL ILLNESS & FEVER OF UNKNOWN ORIGIN AGE 0-17	0.6274	0.7780	24.0
423	18	MED	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES	1.5333	1.6059	4.7
424	19	SURG	O.R. PROCEDURE W PRINCIPAL DIAGNOSES OF MENTAL ILLNESS	2.2176	2.2865	3.1
425	19	MED	ACUTE ADJUST REACT & DISTURBANCES OF PSYCHOSOCIAL DYSFUNCTION	0.6004	0.6215	3.5
426	19	MED	DEPRESSIVE NEUROSES	0.6580	0.6286	-4.5
427	19	MED	NEUROSES EXCEPT DEPRESSIVE	0.6315	0.5994	-5.1
428	19	MED	DISORDERS OF PERSONALITY & IMPULSE CONTROL	0.7305	0.7351	0.6
429	19	MED	ORGANIC DISTURBANCES & MENTAL RETARDATION	0.8868	0.8932	0.7
430	19	MED	PSYCHOSES	0.9329	0.9089	-2.6
431	19	MED	CHILDHOOD MENTAL DISORDERS	0.7134	0.7028	-1.5
432	19	MED	OTHER MENTAL DISORDER DIAGNOSES	0.7097	0.7004	-1.3
433	20		ALCOHOL/DRUG ABUSE OR DEPENDENCE, LEFT AMA	0.4232	0.4110	-2.9
434	20		ALC/DRUG ABUSE OR DEPENDENCE, DETOX OR OTHER SYMPT TRT WITH CC	0.8149	0.8095	-0.7
435	20		ALC/DRUG ABUSE OR DEPENDENCE, DETOX OR OTHER SYMPT TRT W/O CC	0.5903	0.5738	-2.8
436	20		ALC/DRUG DEPENDENCE W REHABILITATION THERAPY	0.9788	1.0164	3.8
437	20		ALC/DRUG DEPENDENCE, COMBINED REHAB & DETOX THERAPY	1.3306	1.2760	-4.1
438	20		NO LONGER VALID	0.0000	0.0000	NA
439	21	SURG	SKIN GRAFTS FOR INJURIES	1.7523	1.7151	-2.1
440	21	SURG	WOUND DEBRIDEMENTS FOR INJURIES	2.2498	2.4994	11.1
441	21	SURG	HAND PROCEDURES FOR INJURIES	0.7185	0.7038	-2.0
442	21	SURG	OTHER O.R. PROCEDURES FOR INJURIES WITH CC	1.9218	1.9165	-0.3
443	21	SURG	OTHER O.R. PROCEDURES FOR INJURIES W/O CC	1.2169	1.1903	-2.2
444	21	MED	MULTIPLE TRAUMA AGE >17 WITH CC	0.8207	0.7824	-4.7
445	21	MED	MULTIPLE TRAUMA AGE >17 W/O CC	0.5183	0.5207	0.5
446	21	MED	MULTIPLE TRAUMA AGE 0-17	0.4796	0.4796	0.0
447	21	MED	ALLERGIC REACTIONS AGE >17	0.4703	0.4734	0.7
448	21	MED	ALLERGIC REACTIONS AGE 0-17	0.3470	0.3470	0.0
449	21	MED	POISONING & TOXIC EFFECTS OF DRUGS AGE >17 WITH CC	0.7922	0.8077	2.0
450	21	MED	POISONING & TOXIC EFFECTS OF DRUGS AGE >17 W/O CC	0.4917	0.4800	-2.4
451	21	MED	POISONING & TOXIC EFFECTS OF DRUGS AGE 0-17	0.5907	0.4819	-18.4
452	21	MED	COMPLICATIONS OF TREATMENT WITH CC	0.8976	0.9455	5.3
453	21	MED	COMPLICATIONS OF TREATMENT W/O CC	0.5137	0.5064	-1.4
454	21	MED	OTHER INJURY, POISONING & TOXIC EFF DIAG WITH CC	0.9067	0.8993	-0.8
455	21	MED	OTHER INJURY, POISONING & TOXIC EFF DIAG W/O CC	0.4692	0.4405	-6.1

DRG	MDC	TYPE	TITLE	FY88 WEIGHT	FY89 WEIGHT	PERCENT CHANGE
456	22	MED	BURNS, TRANSFERRED TO ANOTHER ACUTE CARE FACILITY	1.9811	1.5827	-20.1
457	22	MED	EXTENSIVE BURNS W/O O.R. PROCEDURE	2.5317	2.6766	5.7
458	22	SURG	NON-EXTENSIVE BURNS W SKIN GRAFT	3.7113	4.0349	8.7
459	22	SURG	NON-EXTENSIVE BURNS W WOUND DEBRIDEMENT OR OTHER O.R. PROC	1.7964	2.0305	13.0
460	22	MED	NON-EXTENSIVE BURNS W/O O.R. PROCEDURE	1.0495	1.0193	-2.9
461	23	SURG	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES	0.7198	0.7333	1.9
462	23	MED	REHABILITATION	1.7517	1.8085	3.2
463	23	MED	SIGNS & SYMPTOMS WITH CC	0.7633	0.7692	0.8
464	23	MED	SIGNS & SYMPTOMS W/O CC	0.4740	0.4831	1.9
465	23	MED	AFTERCARE W HISTORY OF MALIGNANCY AS SECONDARY DIAGNOSIS	0.3172	0.3436	8.3
466	23	MED	AFTERCARE W/O HISTORY OF MALIGNANCY AS SECONDARY DIAGNOSIS	0.5383	0.5566	3.4
467	23	MED	OTHER FACTORS INFLUENCING HEALTH STATUS	0.4723	0.4461	-5.5
468			EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	2.4679	3.3045	33.9
469			PRINCIPAL DIAGNOSIS INVALID AS DISCHARGE DIAGNOSIS	0.0000	0.0000	NA
470			UNGROUPABLE	0.0000	0.0000	NA
471	8	SURG	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY	4.0896	4.1503	1.5
472	22	SURG	EXTENSIVE BURNS W O.R. PROCEDURE	10.7296	12.2265	14.0
473	17		ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE AGE >17	2.7107	2.9296	8.1
474	4		RESPIRATORY SYSTEM DIAGNOSIS WITH TRACHEOSTOMY	11.8772	12.3838	4.3
475	4	MED	RESPIRATORY SYSTEM DIAGNOSIS WITH VENTILATOR SUPPORT	3.1757	3.1437	-1.0
476			PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	NA	2.2225	NA
477			NON-EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	NA	1.3763	NA

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